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THE Airman

OFFICIAL JOURNAL OF THE AIR FORCE

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Be strong and of a good courage; be not afraid, neither be thou dismayed: for the Lord thy God is *with thee whithersoever thou goest.*

Joshua 1:9

THE Airman

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Volume III, Number 11 November 1959

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Front Cover: From a painting, **"A C-133 Transport Mission,"** by Bob McCall, Society of Illustrators.

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LETTERS TO THE EDITOR

RECOMMENDED READING

Sir: *Having just examined my August issue of* THE AIRMAN, *I would like to express my pleased reaction to the lead article,* Venio, Video, Vinco. *Sergeant Craven is to be highly complimented for his complete, accurate and thorough coverage of our televised training activities here at Lowry AFB. Personnel of the studio staff as well as other personnel of the base, have received the article so enthusiastically that normal supplies of* THE AIRMAN *were speedily exhausted.*

Col. Jack W. Hughes
Lowry AFB, Colo.

Sir: *Reference your article on TV instruction in* THE AIRMAN. *This article was shown to the Dean of the College of Science and Humanities, Iowa State University, Ames, Iowa and he was interested in knowing if it would be possible to get reprints of this magazine or article. Our detachment would also like some and if it is possible, we would appreciate receiving about six copies.*

Maj. James W. Carothers
AFROTC Det. No. 250

Sir: *We read the article in the August issue of* THE AIRMAN *on* Your Retirement Estate *by MSgt. John J. Calvarese of Randolph AFB and found it very informative. The Uniformed Services Contingency Options Act of 1953 has confounded our men for some time but this article does an excellent job of explaining the various aspects of the law. May we have permission to reprint it in the next issue of our squadron newspaper?*

1st Lt. Leroy S. Kimmons
York, Penn.

Sir: *I have just read the excellent article,* Your Retirement Estate *in the August issue of* THE AIRMAN. *I feel that this article gives excellent coverage to a subject which is at best, difficult to describe. I would like permission to reproduce the article for distribution to all personnel within this region who are approaching their time of decision.*

1st Lt. Pat E. Brant
AACS, Hamilton AFB.

Thanks for the compliments. As many extra copies as possible will be supplied. Permission is granted to reprint.

(Continued on page 30)

Is MATS

by Lt. Gen. William H. Tunner

IF he had lived in this century, Ben Franklin might have prefaced his *Poor Richard's Almanac,* "For want of a bolt, the wheel was lost; for want of a wheel, the aircraft was lost; for want of an aircraft, the battle was lost."

Though our age is many times more complex than Mr. Franklin's, this simple modernization of his maxim written over 200 years ago, aptly describes a fundamental principle of modern military logistics and in turn, the vital importance of a strong strategic airlift force. That strategic airlift force today is the Military Air Transport Service.

The mission of MATS is to:

★ Provide military air transportation to deploy the nuclear striking forces—men, weapons, equipment, and supplies—of the United States in any national emergency.

★ Provide direct airlift support to all elements of the Department of Defense.

★ Maintain the air routes and worldwide bases necessary to global air transport operations.

★ Provide services in communications and navigation, air rescue, charting, and weather to support USAF global combat operations as well as the flow of military air transportation.

★ Train constantly in peacetime for the tasks of war.

This is a big order. So big that the mobility of all U. S. forces—air, land, and naval—is inextricably entwined with the effectiveness of MATS. It is big because today aerospace power is the biggest deterrent to war.

Slow Birth

The second World War provided a mighty impetus for the development of the tools of airpower. Before that conflict ended, airpower had clearly emerged as the decisive force in war.

But while bombardment and fighter aviation developed rapidly during the war years, strategic airlift and its optimum utilization did not fare equally well.

There *was* a global airlift force—the Air Transport Command, and it performed military miracles in shrinking time and distance from the war factory to the front line. But with few exceptions, the use of airlift was an emergency reaction rather than an integral part of war planning. One such exception was the supply of China by air on a steady basis, from India over the "hump" of the Himalayas.

So World War II remained essentially a war of huge depot inventories, mountainous stock piles, and crawling supply and personnel pipelines tied to the speed of surface transport.

With the war concluded, we hastened to demobilize and our airlift force was reduced with the rest. The tremendous potential of strategic airlift now existed only in the minds of some wartime commanders who had seen what it could do.

In June, 1948, the remaining hard core of the Air Transport Command was unified with the smaller Naval Air Transport Service, and the new unit was named the Military Air Transport Service.

Before MATS was one month old the Soviets clamped their land blockade around the city of Berlin. The first test of will of the Cold War was on. The decision was made to supply West Berlin entirely by air.

Four-engine C-54s from the new MATS and from Troop Carrier, Navy, and Marine units all over the world converged on free Germany—and a startling chapter was etched into the story of airlift. For 14 months the food and fuel to sustain more than two million lives was flown into Berlin, reaching an average of 8,000-9,000 tons a day routinely—a grand total of more than two-and-one-quarter million tons.

Really Necessary?

Commander, Military Air Transport Service

This was no isolated occurrence in a far off theater of operations, obscured by major war actions elsewhere. This was the first naked threat of international Communism against the Free World, and people everywhere watched and awaited the outcome. The United States with its British and French Allies, proved conclusively that airlift had come of age.

Although this should logically have been the springboard from which to build a larger and better airlift fleet, such was not the case in those days of austere economy.

Yet almost before the echo of airlift had died down in the corridors to Berlin, the North Koreans violated the 38th parallel and the full meaning of "Cold" War became all too clear.

Once again, airlift was called upon for emergency operations, flying the long Pacific supply lines to Japan and Korea. MATS' fleet was composed mainly of C-54s, obsolescent even during the Berlin airlift. Only toward the end of the Korean conflict did MATS start receiving the larger and more capable C-124s.

The world, and our own military planners, had now witnessed two cases of airlift at work in situations of crisis and emergency. However, airlift was still being used—as it had been in World War II—as an emergency measure. Since it was barely used at all in peacetime, it could not go all out at once in expanded emergency situations. Further, the proper use of airlift was being held back by lack of aircraft designed specifically for strategic airlift applications.

At Travis AFB, Calif., a C-133 Cargomaster *prepares to take on a mammoth load. The aircraft can airlift 20 tons 4,000 miles or 94,000 pounds more than 1,600 miles. Today's war plans rely on the* Cargomaster's *capabilities.*

Lt. Gen. William H. Tunner, Commander, MATS

With these facts in mind, our top defense planners took a hard look at the entire problem. They knew that the supply concept of World War II could no longer be accepted. With the price of weapons and military equipment skyrocketing, never again would we be able to afford an over-supply of every item, stockpiled throughout the world. No longer would we be able to sustain huge sprawling depots, filled to the ceilings with thousands upon thousands of items of tremendous cost.

They knew, too, that in this technological era, trained manpower was one of our most precious assets. They calculated the number of unrecoverable man-years lost as a result of tying people up in slow-moving personnel pipelines. The figures were large, too large.

MATS' Role Evolves

So the finest logistical minds of our Defense department concluded that our entire military structure must have wings of speed and mobility. The inherent ability of airlift to move men and materiel over great distances in short spans of time, they decided, must be made a part of all military planning.

Thus MATS was given the role that it has today. The immediate responsiveness and speed of strategic airlift were tied into the Emergency War Plans of the Joint Chiefs of Staff—and the plans are only as effective as the airlift on which they depend.

Since the war plans are geared to air logistical support, it follows inevitably that peacetime defense operations must be based on the same premise. Airlift forces must *exist* in a state of peacetime readiness if they are to be effective when an emergency arises.

That force exists today, and it is in a D-Day state of readiness today—and every day. We know what MATS' job would be in an emergency situation, from local containment actions to global nuclear war. We know exactly what MATS would have to do.

So MATS does almost exactly the same things *now*. For example, every day MATS flies many routes that would be flown in case of war. It is an old principle of education that the best way to learn how to do anything is to do it. That is the principle we follow in our exhaustive, intensive daily, round-the-clock training program.

MATS provides the direct wartime support of the Air Force, the Army, and the Navy. Those striking forces train constantly to keep themselves razor sharp and ready. And this is the result which they produce—preparedness.

MATS too, trains as constantly as the forces depending upon us to be ready, and MATS too produces preparedness. It also produces something else. MATS creates—as a byproduct of war training—an airlift capacity. Instead of wasting this airlift, the Department of Defense uses it, judiciously, in supporting our military interest throughout the world.

In this way, the objectives of defense planners are

Himalayan "hump" operations of World War II spawned today's global strategic airlift capability.

Situations like Lebanon and Formosa require immediate action; MATS must be available to airlift both men and equipment.

carried out to the fullest. War plans are based upon airlift support. The airlift, to be ready, must be exercised. In exercising the airlift force, DOD automatically relates peacetime logistics to the operation that war would demand.

Just how logical it is can be understood by a brief look at the economies derived from moving equipment and people by air.

In the case of the Air Force, by way of example, one of the most expensive items in today's operational inventory is the jet aircraft engine. Some models cost as much as $500,000 each. An aircraft using four such engines needs $2,000,000 worth of powerplants alone. And, of course, aircraft engines are in constant need of overhauling, rebuilding, and replacement.

If aircraft engines were moved to operational units overseas by ship, the pipelines would have to be kept filled at all times, to make sure that no aircraft lost its combat-ready status for lack of power. This means that the Nation would have to buy many more engines than are now bought.

The same, of course, holds true for all items of equipment, and is particularly significant in the area of high-value items. By flying these items from the United States direct to the overseas users, the Air Force has saved several *billion* dollars in initial procurement costs alone since 1953.

Moving people overseas by air provides similar economies, and thoroughly trained people are well-nigh irreplaceable. Compared to surface transport, airlift effects a saving in pipeline time of about 14 days per man. Without recruiting a single extra body, personnel airlift has created sufficient additional people, in effect, to man three heavy bombardment wings.

It happens, then, that airlift, in keeping itself in shape for emergency, provides an added and welcome bonus in the form of real savings for the Department of Defense.

Basis of Peacetime Flying

Now, does MATS fly just the exact amount to carry all Defense traffic, or does the department send just as many people and as much cargo as MATS can handle?

Actually, neither one is the true case. MATS flies its strategic transport fleet at a steady peacetime rate that is just high enough to provide a base for rapid acceleration. MATS had not flown a high enough rate before Berlin or Korea and therefore required months to force the utilization of its aircraft up to the desired sustained emergency level. Fortunately, the Nation had time in both Berlin and Korea. The next time, we can hardly expect the courtesy of leisure time to build up our rate of operations.

Experience on those two airlifts, and in subsequent operations, has shown that the strategic airlift fleet must be exercised no less than five hours a day per assigned aircraft if MATS is to suddenly surge to the much higher rate envisioned in the Emergency War Plans. So five hours a day is our steady peacetime rate.

Need For Civil Help

But that moderate training rate does not generate enough airlift capability to satisfy all peacetime airlift requirements of the Department of Defense. MATS therefore goes into the market place to make up the deficiency. MATS buys airlift from the commercial airlines of the United States, a process of air transport augmentation by contract.

The contract procedure has a number of rather substantial benefits to all concerned. MATS flies at that operating level which training for the wartime mission requires. A percentage of the strategic airlift fleet can be kept on a continuous ready alert without having peacetime DOD traffic piled up at the port. And, finally, the airlines are kept up-to-date on MATS routes, methods, and techniques and their economic strength is increased. These are important points, since MATS would also depend upon their assistance in the event of a national emergency.

Defense requirements for airlift service have grown steadily since the end of the Korean conflict. However, the MATS training rate of aircraft utilization has had no reason to grow. As a result, MATS has contracted for an increasing amount of commercial airlift with

each passing year. The figure has grown from $4.5 million in 1955 to $71 million for fiscal year 1959.

If any more of the existing peacetime airlift requirements of DOD agencies were contracted to the commercial carriers, one of two things would have to happen: either MATS aircraft would have to fly less than five hours a day—or MATS would have to fly with empty aircraft.

MATS planes cannot fly less than five hours and still guarantee an immediate surge to meet emergency sustained requirements. So the only alternative would be to fly empty, or perhaps with dummy loads. Such an alternative would have two immediate results: first, the essential value of realistic training would be lost. Second, to fly MATS aircraft empty would cost many hundreds of millions more each year to support the deployed forces of the Army, Navy, and Air Force. MATS needs the help and cooperation of the civil airline industry. But, the airlines can only participate in *augmentation* of the military airlift force, not in substitution.

There, then, is the background of the Military Air Transport Service—the job to be done, the training for the job, and the partnership with the civil air transport industry.

The individual elements of MATS are many and varied. Command Headquarters is at Scott AFB in Illinois. The two main operating units are the Eastern and Western Transport Air Forces—EASTAF and WESTAF—with their headquarters in New Jersey and California, respectively. These are the two forces which operate almost 500 four-engine strategic transport and troop carrier aircraft across the Atlantic and Pacific Oceans—along 115,000 miles of global air routes.

In addition to the Transport Air Forces, MATS operates four technical services for the Air Force and the Department of Defense. These are the Airways and Air Communications Service, Air Weather Service, Air Rescue Service, and Air Photographic and Charting Service, and their very names indicate what their missions are.

The first two services also have their headquarters at Scott AFB, while the remaining two are at Orlando AFB in Florida. Without the support of these vital services, military aircraft could not continue to operate safely and efficiently.

There are also a number of independent units under the MATS banner. The 1254th Air Transport Group, in Washington, D. C., operates special air missions for the President of the United States and other high-level Government dignitaries. The Iceland Air Defense Force as a part of the NATO force, is responsible for the air defense of Iceland. The 1707th Air Transport Wing, at Tinker AFB, Okla., is the "graduate school" in which airlift and ground crews receive the advanced training required to attain a maximum state of readiness. And the 1405th Air Base Wing performs the housekeeping chores for MATS headquarters at Scott AFB, and the various tenant units on that base.

Add them all together and you have some 120,000 people, of whom 4,000 are U. S. Navy personnel. Broken down further, about 36,000 of the total are directly engaged in the strategic airlift and troop carrier mission.

Unusual and outsized hardware, like this Thor *missile, require high-speed aircraft capable of tremendous loads.*

Maintenance personnel also require constant practice in order to effectively do their job in any national emergency.

The primary tools of the trade, of course, are the big transports. At the present time, the strategic airlift fleet consists of the C-118, a military cargo version of the DC-6; the C-97, a version of the Boeing 377 (or *Stratocruiser);* the C-121, a counterpart of the Lockheed *Super Constellation;* the Douglas C-124 *Globemaster,* for which there is no civil equivalent; and the Douglas C-133 *Cargomaster,* which likewise has no counterpart in the civil fleet.

The Payoff

With this organizational structure, these people and these aircraft, MATS has been carrying out its assigned mission since its formation in 1948. The value of training for both large and small emergencies has been demonstrated again and again in times of crisis.

The latest proofs came last summer when the twin eruptions of Lebanon and Taiwan put military airlift power to the test on opposite sides of the world at just about the same time. In both cases, MATS showed that it was ready—moving into position around the world before the public was even aware that brush-fires were burning, beating all deadlines, carrying troops, weapons, military equipment, and supplies to where they were badly needed, swiftly and dependably. In one case, MATS airlifted a unit of 12 F-104 *Starfighters* to Taiwan—airplanes, armament, crews, and spare parts.

At the same time MATS continued flying special missions to the Arctic and Antarctic; carrying bulky electronic installations to Alaska; airlifting *Thor* missiles from California to England; supporting the Air Force Missile Test Range from Cape Canaveral to Ascension Island; and—with the help of its commercial partners—carrying on the routine airlift of Defense department cargo and personnel to all the overseas theaters.

At the same time MATS had ready a sufficient portion of the strategic airlift fleet on alert, prepared to move out at once in case the whistle blew for the big one. Throughout the first 11 years of its life MATS has been ready whenever airlift was needed. MATS is ready today.

The Needs

But MATS' ability to be ready tomorrow is based upon adequate peacetime utilization of the airlift fleet, flying realistic missions. And it is based upon one other thing—the maintenance of a modern strategic airlift fleet.

This modernization must answer to three specific needs. First, jet bombers and fighters demand high-speed logistical support. The SAC mission, for example, could be crippled at a crucial and decisive stage if the transports bringing up people, supplies, and rearmament flew at less than half the speed of the strike bombers. To prevent such a circumstance, a high-speed, turbine-powered cargo aircraft of long range—on the same continuous alert as the nuclear bombers—is needed.

The second requirement is for a "workhorse" aircraft, to fly a swift and steady stream of cargo and troop airlift missions and resupply. This is visualized as a turbine-driven, long-range aircraft, able to cross the oceans nonstop if the island bases become oversaturated or fall to enemy action.

And finally, the outsize cargo which is so much a part of modern warfare creates the need for a super military airfreighter of enormous capacity.

As for high speed, this requirement could be met by present turbine-powered aircraft, modified for the efficient loading of military cargo. The engine and airframe to make up the "workhorse" could be made available. "Marrying" the right powerplant to the proper airplane to create the most efficient carrier is the only development problem. The superfreighter is already in the MATS fleet in the form of the turboprop C-133. This giant can carry the 90-foot *Titan,* and has airlifted a record payload of 59 tons.

There is no question but that MATS can go on doing its job—as long as the strategic airlift fleet is as up-to-date as the forces which depend so heavily upon it for their combat preparedness.

The Armed Forces of the United States are the best in the world. They deserve and need the best airlift in the world.

They have that kind of airlift power in the Military Air Transport Service today. They must have it in the future.

18

by SMSgt. Hal Bamford

HOWLING 45-knot winds screamed their warning to outdoorsmen and hurled a stinging rain in defiance of all who dared to brave the pitch-black night. A low overcast swirled over choppy waters as the November storm rolled across Alabama's coastal area.

Inside Brookley AFB's operations hangar, three men huddled engrossed in a checker game, consciously trying to ignore the black night which closed around the building. The jangle of a phone caused the three to start noticeably.

Capt. Milton Gordon reached across the desk and lifted the receiver. He listened intently, nodding his understanding while making notes as the voice at the other end droned on. Minutes later, he replaced the phone in its cradle, and moved toward the door.

The other two men, as if in silent anticipation, were already out of the room and moving toward a Sikorsky H-19 helicopter parked some 50 yards across the ramp. By the time Captain Gordon had reached the 'copter TSgt. Calvin Eby, the engineer, had it warming up, and SSgt. Bill Fulford, rescue and survival technician, was in position on the lower deck and checking the maze of equipment.

Five minutes after the "gong" sounded, the chopper was airborne and heading south over churning Mobile Bay in answer to a distress call from the local Coast Guard station. Two parties of fishermen were long overdue—unreported for several hours. Five people—a single man and a family of four—had been reported as missing by relatives.

Slowly the whirlybird made its way down the west shore of the bay as its crewmembers strained to see through the fine, driving rain and scudding, low-hanging clouds. Farther and farther south they moved, constantly on the alert. Finally, Sand Island, one of the last landmarks before the open waters of the Gulf of Mexico, came into view. Suddenly, out of the mist, one of the crewmen caught a glimpse of a weak, flickering light.

Captain Gordon nosed the 'copter down and moved in for a closer look. On the south shore of the island, huddled tightly near a feeble fire in the lee of a sand dune, were all five drenched figures waving frantically at the hovering bird.

Less than an hour later they were being examined by the medical OD at Brookley and, within two hours, physically unharmed but still slightly shaken by their experience, the rescued quintet was safely home.

Meanwhile, the crewmembers had returned to the checker game. For them, it was another "routine" save albeit slightly beyond the scope of their assigned duties. In just over two years of operation, the Search and Rescue Branch of Brookley's Base Operations Section has scored a total of 27 saves while performing 32 emergency missions. And strangely enough, all 27 rescues have been of civilians including hunters or fishermen who have been overtaken by the elements.

From its inception in June 1957, the unit has been the local stepchild. Brookley is prime depot for the Republic F-84 series aircraft. As such, it is responsible for IRAN processing of the *Thunderjet* series. After depot overhaul, the aircraft are flight-tested along a range adjacent to Mobile Bay.

against the elements

Because of this, there had been pressure for formation of a local rescue unit to be available in the event of an emergency. However, months passed without action. Finally, in the spring of 1957, a serious civil aircraft accident occurred in the local area. Several lives were lost which might have been saved had immediate rescue forces been available. As a consequence, it was finally agreed that a local unit should be formed.

At that time, Brookley was prime depot for Sikorsky H-5 helicopters, and two of these craft were diverted for use by the organization. Crews went into immediate training and, by August 1, had attained proficiency.

It proved to be none too soon. On August 8, one of the crews was aloft on a normal training flight when it received a call. The Coast Guard was reporting a small boat, with two men aboard, capsized in the gulf. The chopper altered its run and set out for Fort Morgan at the west entrance to Mobile Bay. There, a half mile off shore, crewmembers spotted the boat. Despite reports, they found the 14-foot outboard had not capsized, but the engine was dead, and the boat drifting helplessly. Its two occupants were hoisted aboard and the boat left to drift.

The mission taught some valuable lessons. Among them was the fact that the H-5 was simply too small for multiple rescues, and a larger craft was needed.

Earlier in the year, Middletown AMA, Pa., had sent two H-19s to Brookley for temporary storage. Local search and rescue members now began a concentrated campaign and obtained these larger aircraft for their use. They have continued to operate with H-19s since then.

Today, the organization boasts 18 men—four officers and 14 enlisted men—and they have built a solid base for continued operation. Still, however, the stigma of stepchild hangs over them. Despite its obvious value, the unit operates without a Table of Organization, a commander, and virtually without any paper authorization. The senior man, presently Capt. Joe M. Rountree, functions as commander. The four pilots and an equal number of rescue and survival technicians are assigned to base operations. The engineers and maintenance men belong to base maintenance.

In reality, the unit is under control of and authorized by specific regulations. Basic among them is AFR 55-8. In addition, AMC regulation 55-9, MOAMA regulation 20-101, and the Brookley AFB and 14th Air Force Search and Rescue Plans all figure prominently in the overall picture.

However, almost without exception, the ingenuity of the people assigned has been the major factor in the outfit's success. Through their initiative, they have built a communications set-up that has proven invaluable in aiding their operations.

Their most recent rescue mission, and possibly their most dramatic, is an excellent example of the cooperation which has been made possible by the "do-it-yourself" direct radio. Tied in with the Coast Guard at nearby Choctaw Point, regular and shortwave broadcast bands, and the tower, it provides direct communications with their aircraft.

Early this spring a large ore transport ran aground near the mouth of Mobile Bay. Efforts to float the ship went on for several days. Late one evening, well after sunset, the unit received an emergency call. A cable, running from one of the tugs to the beached freighter, had snapped, and two men had been severely injured.

Capt. John Allison's crew was on the alert. They were immediately dispatched to the scene. Again, high winds, light rain, and darkness hampered their operations, but Captain Allison landed the helicopter on one of the forward hatch covers, TSgt. Walter Monsees went aboard to render emergency first aid, and the men were moved to Brookley.

There they were met by an ambulance and rushed to a local city hospital. Later medical reports indicated that the quick action had probably saved their lives.

Three crews pull a rotating, around-the-clock alert, seven days a week, with a fourth crew constantly available to fill-in in an emergency. About the only rescue action which is denied to them is the right to jump into an isolated area, although Sergeant Fulford is a qualified jumper.

Despite what might be called a tenuous existence, the unit has established a solid reputation not only on the base but throughout the Mobile area, and has built an amazing esprit de corps that unquestionably aids in its success.

Their operations may not be anchored in the firm foundation of a TO & E, but this detail detracts little from the justifiable pride the men take in their accomplishments.

You're pretty weak,
and your dinner
has gone out to sea,
but now
you can come back
to the
world of the living.

SURVIVAL OFF NUMAZU

by Maj. Paul K. Jones
Hq, Fifth Air Force

WHERE Fujiyama rises from the sea, Suruga Bay reaches 40 miles from north to south and 35 miles from east to west. It is a breeding place for porpoises.

For a man with bold, broad ideas about water survival training, Suruga Bay is an ideal location. Waters are warm for six months each year, the breeding porpoises keep sharks at a respectful distance, and the thousand square miles of ocean within the bay provide the space needed for a realistic curriculum.

Capt. Fred B. Ewing, escape and evasion officer of the 67th Tactical Reconnaissance Wing, had bold ideas about such training and he did not plan a piddling beachside school for waders. When aircraft ditched, they ditched at sea—and the open sea was the environment needed in which to teach men how to survive.

The training was vitally needed.

There was evidence that aircrews had died at sea needlessly. There was evidence that survival equipment, misused, had killed instead of spared.

In 1956 Captain Ewing was, and still is, a KB-50 aircraft commander. At that time, he was assigned to the 421st Air Refueling Squadron stationed at Yokota Air Base, Japan—an outfit which uses the whole Pacific Ocean for its flying area. When he was placed in charge of water survival training he knew what he wanted to do for his squadron and he went to work.

There were no funds for the project he had in mind. There had been no programming for equipment, or for an operating location, or for support. In the beginning it was strictly a scrounging, begging, cajoling operation.

He approached the government of Japan and obtained rights to 300 yards of shore front near the city of Numazu and a vast wedge-shaped tract of ocean in Suruga Bay. He visited salvage yards and reclaimed tents, steel runway matting, and kitchen equipment. He found personal equipment and survival gear that had outlived its normal life expectancy. He rounded up some men who believed as he did.

He started his school and trained his squadron mates so that they could survive at sea.

He did it so well that other squadrons within the wing wanted to share in the same training. Before the first summer was finished, over 600 people had been trained. The next year it became a wing rather than a squadron project, and nearly a thousand more were trained. In its third year it became a Fifth Air Force mission and the graduates who now came from the Air Force, the Navy, the Marines, and the Self Defense Forces of Japan had more than doubled over the year before.

The school had become interservice and international in scope. It succeeded so well that other schools were springing up throughout the world and these schools, too, based their curriculum on the broad bold thinking of Captain Ewing.

Come and See

What is there about Numazu which has caused this imitation? Why don't you come along and see?

Bring a flying suit, a floppy hat, some suntan lotion and a pair of old black shoes that you don't mind getting wet.

"Black?"

"White attracts sharks."

"But you said . . ."

"Yeah, yeah—the porpoises. But you know how it is with attacking bombers and defending fighters."

"Some always get through?"

"If they try hard enough. But we're proud of something down here. Nobody has been seriously hurt yet . . . in *any* kind of an accident. We're not worried about sharks but we still want you to wear black footgear. In the same way we're not worried about drowning . . . but we want you to wear your life vest."

For two days in a canvas quonset hut on the shores of Suruga Bay you are told all there is to tell about personal equipment and survival gear. You get briefed on medical and psychological aspects of sea survival, something on first aid, and you learn about emergency communications. You get lectures on edible and ferocious marine life, and you visit a Japanese aquarium at Mito across the bay. Right away you realize you're being trained by men who know.

There are only 29 permanent party people at Numazu —three officers and 26 men—but everyone is a specialist. Every cook, driver, and PE man—every officer, every airman assigned to the Numazu Water Training Center has already taken the complete course and graduated. They all know what you're going through.

On the third day you hit the water.

For the past two days you've heard the surf rushing and roaring down on the beach and the choppers roaring in and out. You've seen the fantastic upper classmen, sunburned or cream-covered, wearing hats tied with string to soaking wet flying suits and black sneakers cut out at the toes—universal shoe sizes to be passed from class to class. You've seen the upper classmen go home at night dragging their tails behind them.

You've seen and heard, and you are somewhat apprehensive when you board a medium sized Navy landing craft with 46 classmates and head out to sea. But the first water exercise gives you confidence. About a mile out you step into a ballooning yellow antiexposure suit, push out the air as best you can, and strap on a life vest. You take your place in line and jump into the ocean when your time arrives. You learn to shake the thing down, to get all the air out of it and feel it grab hold of you and squeeze. It keeps on squeezing—but after you have floated around in it for an hour or so you somehow get used to it.

You learn what the thing is all about.

At Lunch, You're Wet

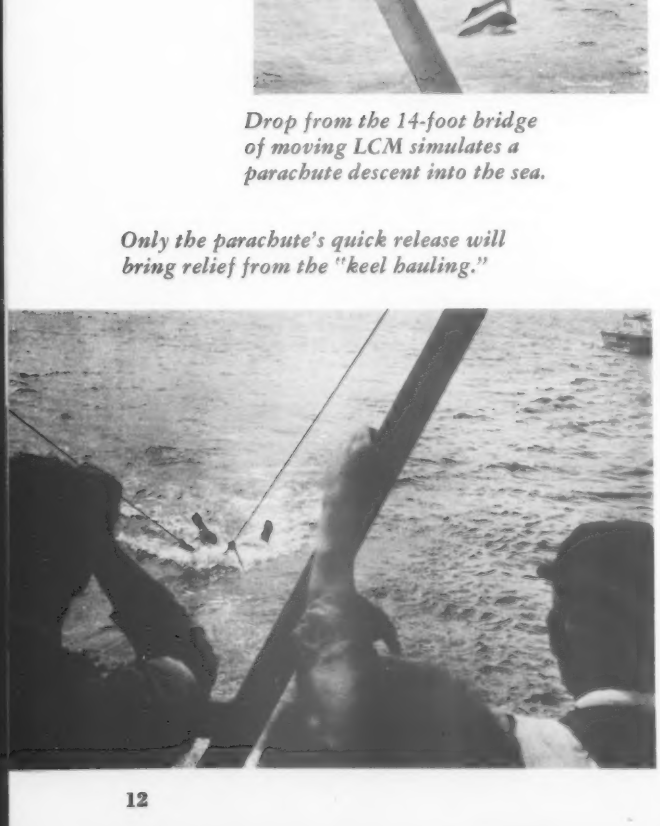
Next challenge is a three-hundred-yard swim—with the life vest but without the rubber suit. With clothes on in the choppy open seas it is a mansized swim. This is what the exercise is designed to teach you: stay with your life raft until you are absolutely sure you can make the swim to safety. The 47-man class, which includes three nonswimmers, spreads out over a square mile of sea before the swim has been completed.

A demonstration by the 36th Air Sea Rescue Squadron from Johnson Air Base gives you time to get your wind back. Smoke flares belch on the water and para-

Two medium size landing craft (LCMs) loaned by the Navy are the work horses for the course.

Drop from the 14-foot bridge of moving LCM simulates a parachute descent into the sea.

Only the parachute's quick release will bring relief from the "keel hauling."



Capt. Fred Ewing— he founded the course.

medics leap from choppers into the sea. An amphibian lands in the bay, the landing craft carrying the students maneuver for good viewing positions, men are choppered around from the sea to boats to the beach.

At lunch, you are still soaking wet.

On the afternoon of the third day the LCM takes you several miles out in the bay. You strap on your Mae West and a parachute harness and a one-man dinghy pack. The LCM sets up an "S" shaped pattern. You take your turn. You climb up to the 14-foot bridge, get attached to two lines which represent parachute risers, and you leap into the sea from the moving platform.

When you surface the boat pulls you as would a billowing 'chute, until you find the quick release to end the wild ride. Then you shake out your dinghy, inflate it, board it, bail it, patch it, learn how to paddle it, use a survival mirror, cover yourself with protective flaps, desalt some sea water, and float around the bay . . . for hours. They take a head count when they pick you up . . . still 47.

You get home pretty late.

Next morning you head down the coast. Two Marine choppers from Marine Air Group 16 at Oppama are standing by on shore. They take off. By the numbers you go off the stern of the boat, three men at a time. One of the choppers sweeps in over you and you are blasted by spray and waves and down draft. Faces look down at you from the flapping bird and a cable and harness snakes down to the sea. One at a time you slip into the harness, get winched up to the helicopter, pulled through the door, and flop into a tub-shaped canvas area at the rear of the cabin. When you're all aboard, the flapping, shaking, vibrating whirlybird zips you onto the beach, leaves you in your dripping flying suit, and heads out for three more birdmen who are even then floundering in the drink. Two choppers, one coming and one going, pick up the 47 men like an infallible machine that does its job again and again and again.

You're not through. You do it again, too . . . and again and again. You do it in different ways. You as-

A 20-man liferaft can be pumped up by hand if automatic inflation equipment fails.

From an LCM, Lt. Dave Seyer directs an H-19 transferring a paramedic.

sume that one of your companions is injured and you get him into the chopper with no assistance from him. You make a pick up in minimum time. You make another trip up a rope ladder that dangles into the sea.

Again, lunch is pretty wet.

In the afternoon you go way out again, this time with a 20-man life raft. Sixteen people hurl the huge canvas pack into the sea and then hurl themselves in after it. You help shake it loose, inflate it, board it, and then find enough equipment encased within it to keep the whole party busy for the rest of the afternoon. You raise the yellow canopy on poles and it is all quite pleasant until a flare rises from the LCM. The flare is a signal that you are now in enemy waters. The canopy which is yellow on top is blue on the bottom. You must reverse it, pull down the poles, deflate the upper ring of your raft, and attempt to hide every bit of yellow and to blend in with the sea.

Breathing space is cut to a minimum as you pull the canopy over you. As the sitters go prone, moving space becomes even more precious. The waters slosh over the single ring and you're all mixed up with arms and legs and bodies and stagnant air. And then the seasickness begins. Now, it is all very unpleasant . . . but the LCM will not pick you up until you are out of sight. You work hard and wait and wait. Finally—you hear the roar of engines, a blowing horn, and a megaphoned voice. You can come back into the world of the living.

But you're pretty weak—and your dinner has gone out to sea.

When you get home after this day you are pretty sure to sleep.

In the morning the choppers are back. You go into the sea and out of it, into the air and onto the beach and back in the boat and back into the sea.

Lunch is pretty wet.

In the afternoon the LCM goes out to sea. It goes OUT to sea—25 miles out, beyond the blue horizon, out of sight of land. If the sky is clear you might see Fuji but the sky is seldom clear.

You have an eight-man dinghy this time when off you go into the deep blue under. You shake it out, inflate it, patch it, climb in, raise sail, and head off—for Okinawa. They won't let you make the whole trip. They'll come roaring around after awhile, pretty smug in their great big power boat, and get you headed in the right direction. But before you finish that afternoon—you will have sailed to shore.

On Saturday morning you graduate. You will do so with a deep down satisfaction because you know that you have been tried and that you were not found wanting. Nonswimmers, who average about three per class, are proudest of all—and they should be.

On the way home some of you, for the first time in years, will feel the gratifying ache of muscles you forgot you ever had.

At Numazu there is challenge and movement and accomplishment. And there, too, are dedicated people. Lt. Dave Seyer, an intelligent, alert fighter pilot from the 68th FIS at Itazuke, is a former Air Force Academy Tac Officer. At Numazu his title is somewhat vague but he actually serves as a highly efficient operations officer. Maj. Francis Galerneau of Headquarters, 67th Tactical Reconnaissance Wing, is commander of the training center. A command pilot, Major Galerneau has a frank, warm personality and a knowledge of supply procedures, both of which do much toward smoothing the way with higher headquarters. Captain Ewing, sincere, persistent, coolminded, with the big picture before him, actually serves as executive officer. The airmen are headed up by TSgt. Robert Kinney, survival technician of the 67th Tactical Reconnaissance Wing.

They make a good foursome. They know what they are doing and what they hope to do. They have obtained the cooperation of the Army, the Navy, the Marines, and the government and Self Defense Force of Japan. And they return to these organizations more than they borrow from them.

This is the peacetime Air Force.

This is Numazu.

In the Name of Congress

No. 14 IN A SERIES

ATTACK on WEWAK

Immediate aim was to sweep the Japanese from New Guinea.

by SMSgt. Hal Bamford

It was late evening, August 13, 1942. At Amberly Field, Brisbane, Australia, American Air Force officials were gathered in the fading light, awaiting the welcome sound of multiple engines.

Scheduled to arrive was the first complete group of B-25 aircraft ever flown from the United States to Australia. The men and aircraft of the 38th Bombardment Group had departed Hamilton Field, Calif., on August 6, island-hopping across the vast expanse of the Pacific, to join the air war against Japan. The total flight encompassed something over 6,700 nautical miles.

Within minutes of their scheduled arrival time, the twin-engine *Mitchells* turned into the pattern and began to settle on Australian soil. Only four of the group's aircraft did not reach Amberly Field, but all arrived safely "down under"—the four truants landing at alternate strips, their tanks dry.

One of the flight leaders of that historic hop was Capt. Ralph Cheli, soon to distinguish himself as one of the true heroes of the Pacific phase of the war.

Within a month, aircraft of this group went into action, and from mid-September, 1942, until well into the early months of the following year, the 38th Bomb Group, Medium, was virtually the only B-25 unit in operation in the entire area.

Captain Cheli was among the group's first to see aerial combat, flying his first mission on September 15.

As late as February, 1943, two squadrons of the group were the only full-strength B-25 units available. Four other elements were assigned, but none had a full complement of aircraft.

Regardless of this fact, Gen. George Kenney, 5th Air Force commander, chose to move all six units from their Australian bases north to Port Moresby. Shortly after the move, Cheli was promoted to major and given command of the 405th Bombardment Squadron.

Although their New Guinea base placed them in slightly greater jeopardy, it also measurably increased the B-25's effective range. They began to support operations in the drive to clear the enemy from eastern New Guinea.

General Kenney's wisdom soon became evident. Early in March, the Battle of the Bismarck Sea broke in all its fury, and the 38th Group played a major part in the action.

Again Major Cheli distinguished himself in the fighting. On March 3, he led his squadron in the first mast-level attack ever executed during daylight hours against enemy shipping in the Pacific area.

Cheli and his unit made two highly successful attacks on the large, well-armed convoy, despite withering anti-aircraft fire. After the smoke of battle had cleared, American aerial forces were able to claim the total destruction of no fewer than 22 armed merchant vessels and destroyers. Major Cheli's judgment and flying ability contributed immeasurably to the sensational success of the new attack strategy.

In the months that followed, the B-25 squadrons played a major role in local actions, supporting the giant offensive that was aimed at driving the Japanese from New Guinea.

By June, the Allies were ready to strike a major blow. Under the most adverse conditions, a landing was forced in the Nassau Bay area of the Huron Gulf. This landing, well along New Guinea's northern coast, brought American forces within striking distance of the Japanese strongholds in the Lae-Salamaua area.

By mid-August, the air offensive which was to precede the final assault on Lae began. Quite naturally, the primary task was to take out the enemy air forces. These were largely concentrated in the Wewak area, another 300 miles west of Lae.

To aid in this new aerial offensive, an advanced base had been established at Tsili Tsili, about 50 miles west of Salamaua but far enough inland to be free from immediate enemy ground attack. The base was in full

operation in time to coincide with the pre-Lae air assault.

For several weeks it escaped Japanese attention, but on August 15 and 16, the enemy launched concerted attacks against the advanced base. Though they enjoyed fair success on their initial air raid, American fighters were ready for them when they pressed their second attack. Japanese losses were so heavy they never again attacked Tsili Tsili.

The stage was now set for the main barrage on Wewak. For weeks, the Allies had studiously avoided this concentration. The trap had been properly baited, and the Japs gobbled the cheese.

Throughout late July and early August, the enemy moved dozens of aircraft into the area. Airfields at But, Dagua, Borum, and Wewak proper all increased their aircraft inventories by at least twofold during the three-week period.

Maj. Ralph Cheli

On the night of August 16, the Americans struck. Fifty heavy bombardment aircraft roared over Wewak in a night raid and, at dawn, the medium *Mitchells* swept in. Destruction estimates of the combined attack reached as high as 50 percent of the Wewak-based planes.

Despite the success of the first attack, on the 18th the heavies unloaded again. Just as their bombs hit, 53 B-25 strafers of the 3rd and 38th Bomb Groups swept in simultaneously over the four Jap airdromes.

The citation which accompanied the award of the 21st Medal of Honor to Maj. Ralph Cheli for his part in that attack (War Department GO 72, 28 Oct. 1943) tells graphically of the assault.

For conspicuous gallantry and intrepidity above and beyond the call of duty in action with the enemy. While Major Cheli was leading his squadron in a dive to attack the heavily defended Dagua Airdrome, intercepting enemy aircraft centered their fire on his plane, causing it to burst into flames while still two miles from the objective. His speed would have enabled him to gain necessary altitude to parachute to safety, but this action would have resulted in his formation becoming disorganized and exposed to the enemy. Although a crash was inevitable, he courageously elected to continue leading the attack in his blazing plane. From a minimum altitude, the squadron made a devastating bombing and strafing attack on the target. The mission completed, Major Cheli instructed his wing man to lead the formation and crashed into the sea.

Surprisingly, Major Cheli survived the forced landing following the attack. After the aircraft had settled into the sea, he was picked up by the Japanese and transported to a prisoner of war camp near Rabaul, New Britain.

There he was held for nearly seven months. Early in March, the enemy decided to move a group of Allied prisoners to compounds in the Japanese home islands. The men were loaded aboard transports at Rabaul. On March 4, 1944, this convoy was sighted by 5th Air Force bombers. Ironically, the ship on which Major Cheli was a captive was bombed and sunk, and he died.

In August, 1952, the recently deactivated Maywood AF Depot was renamed Cheli AF Station in keeping with the Air Force's memorialization program.

In his dedicatory address, Lt. Gen. Clarence Irvine, USAF, Ret., said, "The real significance of service such as Major Cheli's cannot be measured only in terms of gains against an enemy in war. Such a life becomes a lasting symbol of the courage and self-sacrifice to which a man can rise for an ideal, for the love of country, comrades, and duty."

From the mountains, to the prairies,

and the oceans, white with ice,

Alaska's Military Conservation Agents

are on guard.

BOONDOCK BEAT

by Karen Louise Evans, *Hq Alaskan Air Command*

THE Alaskan sun cast cold, shimmering light onto the frozen road. It stretched ahead, a white, single-lane carpet, imprisoned by towering drifts on both sides.

A car crept around a slight curve, its driver noting the study in white; a bleached landscape on which suddenly appeared one spot of color. The jarring note: a giant moose which loomed in front of the car.

Expertly, SSgt. James Wheeler, Military Wildlife Conservation Service Agent for the Alaskan Air Command, braked to a stop. For a long moment, man and beast regarded each other over a half dozen yards of icy roadway. Slowly, so as not to arouse the bemused, 800-lb. road-block, Jim reached for his camera.

"I must have goofed," he recalls, "because at that moment the moose charged." Wheeler remembers the seconds that followed as "among the hairiest" of his life.

The moose hit the front end of the car and for a few seconds battered the grill with hooking, butting antlers. Then, as suddenly as it began, the siege ended. Apparently growing bored with the vehicle's failure to counter punch, the moose mentally declared himself the winner, spun on his cloven hoofs and ambled off.

It was a short-lived victory—literally—according to Wheeler.

"We'd no more than gotten underway when we looked back and saw the moose break its neck trying to scramble up the drifts. So we stopped, backed up and went to work."

Alaskan agents never waste meat, even when it's dumped in their laps accidentally. Within an hour, one head-strong, ex-victorious moose was delivered to a local children's home. As he drove away from the children's home, Wheeler's part in the incident ended—but not the rest of the duties his unique job entails.

Protection Program

Alaskan *Cheechakos* (newcomers) are quick to hear

This Dall Sheep trophy once decorated the quarters of Maj. Daniel A. Story, at Elmendorf AFB. Taken in 1954, it was the year's outstanding trophy and ranks number 11 in the record book.

about it if they err by calling Sgt. Jim Wheeler a game warden. Jim's duties include vastly more than riding herd on violators. Protection is his job and through his and other agents' efforts, the military in Alaska can enjoy the best fishing and hunting possible.

Throughout Alaska, Military Wildlife Conservation Agents like Jim Wheeler are responsible for the conduct of the military hunters from the time they step into the agents' offices to buy licenses until they bring in trophies to be measured and weighed for possible entry in the Boone and Crockett Club Record Book.

Foremost job of the military agent is acquainting each uniformed hunter and fisherman with the rules and regulations covering every area and condition with which he will be in contact. When a newly assigned man arrives at his Alaskan station, he is given all pertinent information at a lecture held for all new arrivals, including civilian employees and dependents.

The agent conducts a discussion of the rules for safety as well as the legal aspects of hunting. A follow-up briefing is given at the beginning of each fishing and hunting season.

The Military Wildlife Conservation Program also includes licensing because a qualified agent can supply a hunter with information above and beyond that available at a busy sporting goods store. For instance, the Air Force sportsman applying for a license at Alaska's Elmendorf AFB, is supplied by Jim's office not only with the license legally right for him, but the latest hunting rules, season deadlines, information of any closed areas, and a sincere "good luck in the field!"

With the advent of statehood, the maximum fine and jail sentence for a violation have doubled. Yet military hunters, protected through the continuing program of supplying current information, avoid violations which could occur through ignorance.

As a direct testimonial to the results of this program, there has been a smaller percentage of violations at-

Two agents of AAC's Wildlife Conservation Office, lash caribou meat to packboards for the long trek back to their hunting camp in northern Alaska.

tributed to the military man than the civilian hunter in Alaska.

The Military Wildlife Conservation Agent came into the picture with the advent of the Military Wildlife Conservation Program. Begun under the direction of Gen. Nathan Twining, the program was an outgrowth of the fact that of all the licenses sold in Alaska, 55 percent are bought by the military population and 50 percent of the bagged game is proudly borne home by the man in uniform.

An avid sportsman himself, General Twining began the program to aid in the "preservation and replenishment" of Alaska's wildlife resources in return for the recreation opportunities enjoyed by military hunters. Originally under the jurisdiction of the Provost Marshal, the program has been operated under the Special Services Office since April, 1959.

Education efforts expand constantly. Movies have been made in the field demonstrating the proper dressing of an animal to be packed out and emphasizing the damage caused by wastefulness.

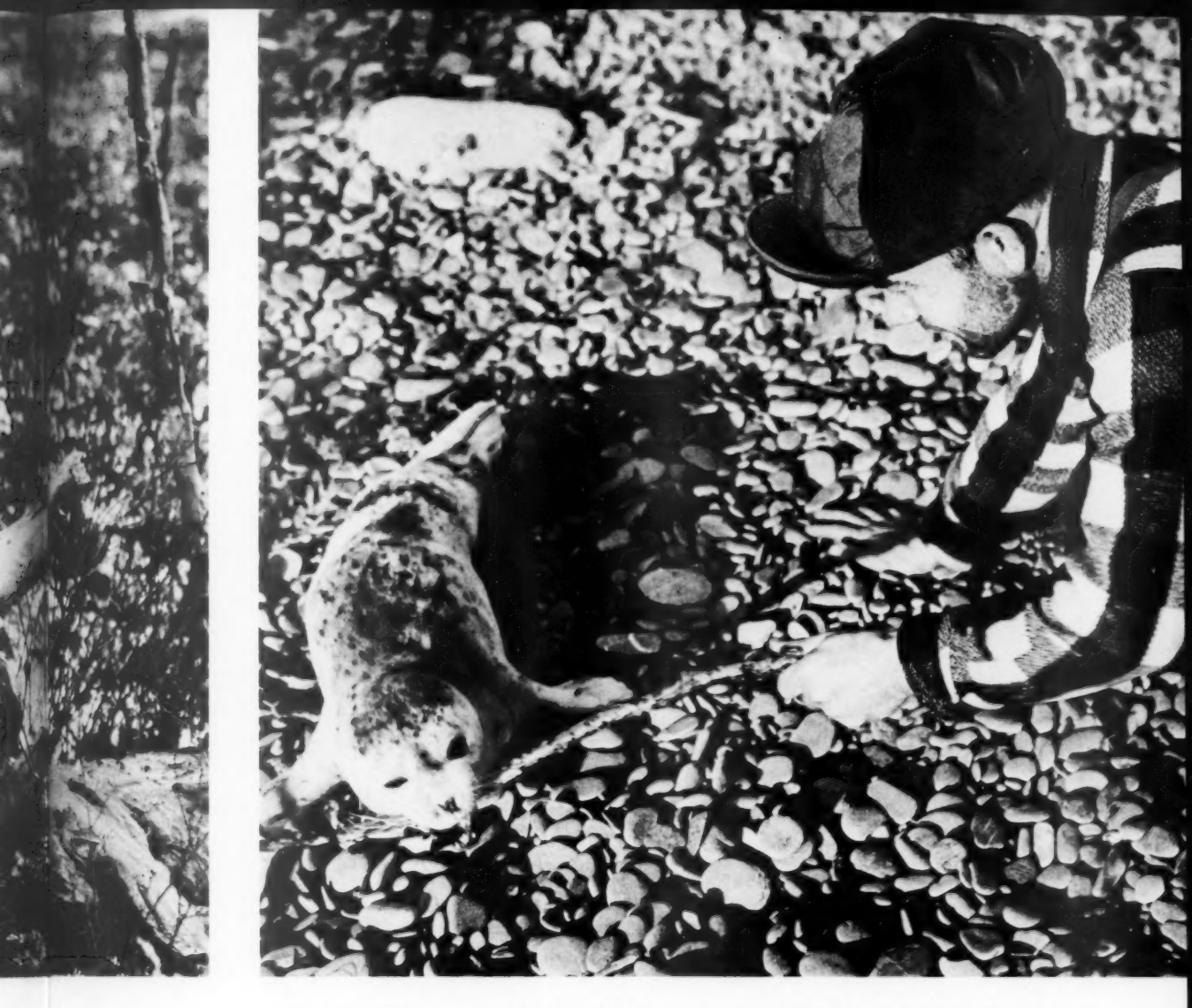
Contrary to popular belief, Alaska is not teeming with "Paul Bunyan size" game and fish. A five-pound trout caught in one of Alaska's streams is twice as old as one of the same weight hooked in the "south '48."

Most of Alaska's "abundant" game is concentrated in a very small area. Thus, a program for conservation and enforcement is a must. A swarm of violators over a comparatively short period of time could virtually ruin the hunting in Alaska.

Aids Civilian Authorities

Military agents have jurisdiction over only the *military* hunters and upon finding a civilian violator will notify the civilian authorities. A military violator is taken to the United States Commissioner's Court where the agent may be requested to appear as a witness.

While the military agent's primary concern is the



Military Wildlife Agent makes friends with this baby seal during a trip afield along remote Bering Sea coast. This is an Alaskan Hair Seal, much prized for its soft, multicolored skin.

welfare of the uniformed hunter, he is constantly called upon to aid civilian authorities. During the big game season, checking stations are manned along the highways for the express purpose of checking weight and bag limits for each hunter. Because of the limited road system in Alaska—especially in the best hunting areas—even the handful of stations manned by military and civilian authorities are tough to circumvent.

The Military Wildlife Agent offers his services to the Alaska Fish and Game Department each year in the patrol of the two abundant hunting areas: the Kenai Peninsula and the Matanuska Valley. Now that Alaska is a state, the civilian authorities have requested that the Air Force representatives continue to help with the patrol of these areas by supplying "rough and ready" agents who are each assigned a 25-day stint in the field.

Further help is furnished the civilian counterparts in the form of equipment and transportation—unhesitantly supplied whenever the need arises. The Air Force has made available L-20s, C-47s, and helicopters whenever possible.

Cooperation with the Alaska Fish and Game Department even goes further. Military and civilian authorities work hand-in-hand on all projects necessary for the improvement of hunting and fishing for both military and civilian sportsmen.

At the annual Fish and Wildlife Hearing in Juneau, for example, the military agent presents recommendations and suggestions that he feels will further the conservation efforts extended by both wildlife agencies.

Expect the Unexpected

Agents are equipped to handle almost any situation arising on the rugged Alaska scene. They may be called upon one day to lecture to new arrivals and the next to transfer a young moose calf to another part of the state to improve the future hunting.

Still another phase of their work is restocking lakes

Military and civilian conservationists insure good future angling for Alaskan sportsmen. Here, fish eggs destined for a dozen lakes and streams are moved from truck to light airplane used in transplanting process.

and streams on military reservations. Agents are also frequently called upon to aid the Alaska Fish and Game Department with restocking projects off-base.

Annually, the Military Wildlife Conservation Program sponsors a big game contest for personnel of the Alaskan Air Command. Prizes are offered for all species of bear: Polar, Black, Brown, and Grizzly. In addition, Caribou, Dall Sheep, and Goat are entered. Agents weigh and measure all contest trophies.

As an adjunct to this program, an annual fishing contest is held. Contestants compete for record Rainbow, Dolly Varden, Lake (Mackinaw), and Grayling Trout and for King and Silver Salmon.

Agents like Jim Wheeler also supervise fishing in the Alaskan Air Command restcamps at Naknek and Unalakleet. A creel census is taken and recorded by the agent at each camp as a precautionary measure against depletion of fish stocks. Creel census is also taken for each lake and stream on the military reservations as well.

Field Duty Is Rough

Jim Wheeler is apt to look back on his job of supervising the fishing area as comparative leisure when he begins his patrol of the rugged hunting field.

His training (four years of study condensed into one annual session at the University of Alaska), perseverance, and ingenuity undergo the best test as he leaves his desk and "takes to the woods." From August 20 to September 20 and from November 1 through December 10, he is on constant guard for the most unexpected of occurrences. The tours are tedious and irregular. Violators don't work by the clock. The agent must move and move quickly when and where he is called upon. He is in touch with civilian authorities from the time he leaves the base until he returns and stows his gear.

One man's patrol often covers an area as large as the state of Rhode Island. He is expected to check bag limits and licenses for the military hunter and attend to any injured sportsmen—or more often cameramen.

Strangly enough, the majority of the men injured in the field are photographers who meet disaster while getting their sight on one subject, unaware of the "friend" approaching from the rear. Result: one injured shutterbug. Or—with his nose buried in the camera, the lensman finds his subject getting bigger and bigger and BIGGER.

As the agent begins his watch on the streams during the early part of the season, the .357 Magnum he wears unconcealed with his civilian clothing becomes an inseparable partner, not as protection from the violators, but from the furry fishermen so common along the streams. It is not unusual to come face to face with an eight-foot bear or moose. "At that point," one agent remarks, "retreat is the better part of valor."

Many military persons are listed in the Boone and Crockett Club Record Book for American big game records with the game they have bagged during their stay in Alaska. The first sight that greets a visitor walking into the headquarters building of the Alaskan Air Command on Elmendorf AFB, is a record Polar bear bagged by the commander, Maj. Gen. C. F. Necrason. It is actually bigger than the world's record but was measured for head size and unfortunately didn't have what it takes upstairs.

The military man stationed in Alaska has a world of adventure opened up to him from the moment he walks into the office and talks to a man like Jim Wheeler, until the time that he steps into the MATS plane for the trip home. He takes with him the memory of experiences which usually come only once in a lifetime. And conscientious Military Wildlife Conservation Agents serving Alaska's bases make sure that the men who follow will have the same opportunities.

XE

SLANTS ON SPACE

/// A comet, "lost" since 1946, has been rediscovered and may bring a fiery rain of meteors to the November skies if it repeats previous performances. Named for its discoverers, Giacobini-Zinner, the comet is expected to swing within 30 million miles of the Earth about November 7, according to computations available as this issue goes to press. During its passes in 1933 and again in 1946, the comet was accompanied by remarkable displays of "shooting stars"—meteoric showers which streaked the night heavens with incandescent light until the hurtling particles burned up in the inosphere.

If Giacobini-Zinner repeats as predicted, the month will see three meteoric spectacles. The other two, which have been recurring annually, are the Taurids, due the first week, and the Leonids, between November 10 and 15. These latter showers are so called because they seem to emanate from celestial areas occupied by the constellations, Taurus (The Bull) and Leo (The Lion).*

Best observation time for watching meteoric showers is usually after midnight. The stony and metallic fragments which compose them start glowing from atmospheric friction at altitudes between 90 and 60 miles. Those of small mass are incinerated in the 40- to 50-mile altitude zone.

From five to 10 comets may appear annually but relatively little is known of their origin. Many have extremely eccentric orbits on which precise computations are not possible because the orbital movements of comets are subject to considerable irregularities due to the attraction exerted on them by the Sun and the planets, a phenomena known as perturbations. This explains why comets occasionally get "lost"—that is, they fail to reappear at projected celestial coordinates at the time they would have if their orbital motion was not subject to such complex interference.

That there is a link between the appearance of certain comets and a rain of "shooting stars" is well established. The meteor swarms follow orbits either identical with or similar to the comets. Some meteoric showers are believed to be debris from disintegrated comets, but the fragments in others cannot be thus explained. Not all comets are accompanied by meteoric displays. Similarly meteors constantly lace the dark heavens without any comets present to account for their appearance. One theory is that such meteors may be debris left in the Solar System after the genesis of the planets.

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/// The *Thor-Delta,* a more versatile version of the *Thor-Able,* is scheduled for a 1960 debut in NASA's research program as an interim general-purpose vehicle for lunar probes, as well as orbiting meteorological and scientific satellites. The vehicle's two stages will be equipped with radio guidance systems, and the second stage will have a coasting flight-control mechanism. The concept is that after burn-out of the first stage the second stage will coast on its own momentum until near maximum altitude when its propellant will be fired at the desired angle for attaining a high altitude orbit. It is estimated that the coasting phase of the flight will cover considerable distances both for orbital missions and probe work. Projected capabilities of the *Thor-Delta* include putting a 65-pound satellite into orbit around the Moon, impacting a lunar area with a 100-pound payload, or making a rough landing there with a 50-pound device. NASA's *Thor-Delta* program, as mapped, extends into 1961.

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/// Glass from interplanetary space? Scientists believe that's the story for tektites, the group name for a variety of small glass objects which have been found in a number of places across the globe. One theory is the tektites may be formed when the nuclei of small comets impact the Earth's surface.

In size tektites range from about a pound to less than an ounce. They come in shades from dark green to black. Some are strikingly symmetrical in formation and others just irregular blobs of glass.

Tektites have a string of geographical aliases. Those found in the East Indies are called billitonites. The tag for the Philippine equivalent is the rizalites while the Australians name theirs australites. Texas refers to the objects as bediasites and over in Czechoslovakia the name is moldavites.

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/// Pluto, the outermost planet, is 39.5 times more distant from the Sun than the Earth. As a result, it receives only 1/1600 as much heat and light from Old Sol as our globe

*(*Check a sky chart for the area where you are stationed to learn whether Taurus and Leo will be visible there.)*

does. The dim deal Pluto got on light is given as the reason the planet was named for the mythological god of darkness and the underworld.

According to the inverse square law the amount of light and heat a member of the Solar System receives varies inversely as the square of its distance from the Sun.

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/// A meteorological satellite producing data that would make possible an improvement of only 10 percent in the accuracy of regular daily forecasts would mean dividends in the billions of dollars for the country's economy according to U. S. Weather Bureau estimates.

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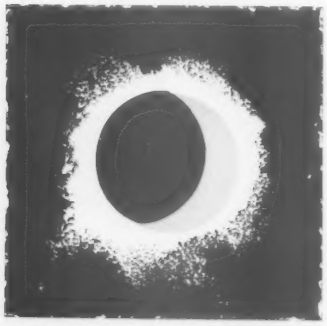
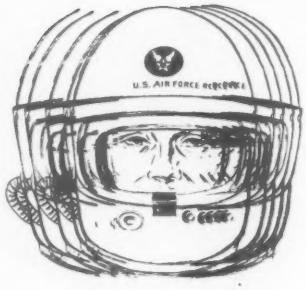


/// At its average distance of 239,100 miles, the Moon may seem pretty far away. Of the 30 other satellites in the Solar System, however, 11 are in orbits of more than a million miles from their respective planets. Jupiter owns the most remote satellite which makes its circuits at an average distance of 14,700,000 miles.

/ / /

/// One reason why manned space vehicles require a built-in system to maintain stability of attitude: Without such equipment, any movement by the occupant of an orbiting device would cause it to oscillate in its trajectory for periods as long as half an hour. Theoretically, the pilot of the craft could restore its stable attitude by exerting the precise amount of his original movement or motion in exactly the opposite direction. This, however, would require the accurate application of intricate mathematical formulae to determine the needed countermovement and experts say that would be beyond the ability of any individual who was less than an Einstein.



Medical authorities believe that this pendulumlike swinging might not bother some astronauts any more than a ship's roll disturbs seasoned ocean travellers. With others, however, it might bring on the celestial equivalent of *mal de mer*—spacesickness.

/ / /

/// The Sun holds an assortment of mysteries which science hopes Space Age research will eventually clear up. One of the most perplexing is Old Sol's odd rotation behaviour.

Astronomical studies to date give us this picture. A point on the solar equator takes about 24.65 days for a complete circuit. At latitudes 30 degrees from the equator, the rotational period becomes 25.85 days. At latitudes of 60 degrees this increases to 30.93 days. At the poles it becomes approximately 34 days.

While these rotational variations provide further evidence the Sun is not a solid sphere, no adequate explanation has yet been found for such behaviour even for orblike concentrations of gases.

/ / /

/// No cheesecake: A limb is the proper term for the outer edge of a celestial body.

/ / /

/// Venus, our nearest planetary neighbor, is 24,600,000 miles distant at its closest approach. This is 10 million miles nearer than Mars comes. At minimum distance, Venus is about 108 times farther away from the Earth than our Moon at its closest which is a mere 226,000 miles.

/ / /

/// Besides our own Moon there are 30 other natural satellites in the Solar System. Of these, 10 have what is called a retrograde motion, i.e., they move in a direction contrary to that in which all the other satellites or their planets are revolving and rotating. In the retrograde group are all five satellites of Uranus, the three outmost of the dozen moons orbiting around Jupiter, the outermost of Saturn's nine, and the inner of Neptune's two.

/ / /

/// A satellite put into transpolar orbit from Vandenberg AFB, Calif., can have virtual immunity from visual observation for months, provided it leaves its pad at a right time in the day.

If the launch is made during broad daylight or in the middle hours of the night sightings from the ground would not be possible for such a long period over most of the globe. Only observers at sites in the polar regions would have a chance of spotting the vehicle.

For the purpose of visual observation, the ideal blast-off times are just before sunup and toward the end of

twilight in the evening. Launches during these periods would keep the satellite recurrently visible in the early or ebbing light daily anywhere from several days to weeks under favorable weather conditions. Exactly how long would depend on the orbital altitudes of the vehicle.

—WILLIAM A. KINNEY

ANDRES CUELLO of ZARAGOZA

God willing, he will have the biggest Christmas in the world.

Lieutenant McGuire brought Andres the drug—but it was hard to tell whether the boy was overwhelmed more by the act or the jet pilot in his flying clothes. At any rate, it was a case of mutual admiration at first sight.

WHEN they brought the drugs to Andres Cuello, it was, of course, only the beginning. Even if he hadn't had leukemia, the boy from Zaragoza, Spain would still have won the hearts of the American airmen based nearby.

Andres was 11 years old in August, but as is often true with children who have been ill for a long time, his alert intelligence and mature demeanor belie his tender age. And his deep expressive eyes, sometimes grateful, sometimes gay, but mostly tired, make you want to move mountains, or fight dragons to make him happy—and well again.

But you can only do what is humanly possible, and pray that God will somehow, someway, do the rest. That's how every man in the Zaragoza Air Base Installations Squadron felt when they adopted Andres.

It was in June, 1958 when Col. Lloyd W. Preston, the Base Commander, learned that the rare drug *Aminopterin* was not available on the Spanish market. *Aminopterin* meant life to Andres. Lt. Joe McGuire took off in a T-33, from Wiesbaden and a short time later, still in flying clothes, gave Andres his drug.

Since then the boy from Zaragoza has led the kind of life that is only an unattainable dream for other boys. He became commander of the Air Base for a day. He put on Colonel Preston's hat, sat at his desk, inspected his command, and met the commander and airmen of the Installation Squadron, who started a fund to purchase medicine to keep him alive. They also gave his father a better job.

Andres toured the fire house, rode the fire engines, visited the GCA unit and finished his day with American rainbow ice cream—vanilla, mint, strawberry, lemon, and banana—all in one giant scoop.

All Spain knows of Andres and the men of Zaragoza Air Base. Letters from all parts of that country, Mallorca and the Canary Islands have poured into Colonel Preston's

ANDRES CUELLO

office. All have offered thanks for the kindness displayed by members of his command. But one, in Colonel Preston's opinion, exemplifies the results that can be attained by "a little kindness toward our fellow man."

Dear Sir:

I know, as all Spaniards know who read the daily newspapers, of the kindness demonstrated by airmen of your command toward a little boy affected with leukemia. I have seen truly extraordinary pictures showing this unfortunate boy inspecting units of your command and being comforted by American airmen.

The tenderness and kindness that you have displayed, as well as your generous liberality, deserve our gratitude. On behalf of a group of friends and of many Spaniards who have witnessed your action—thanks a million.

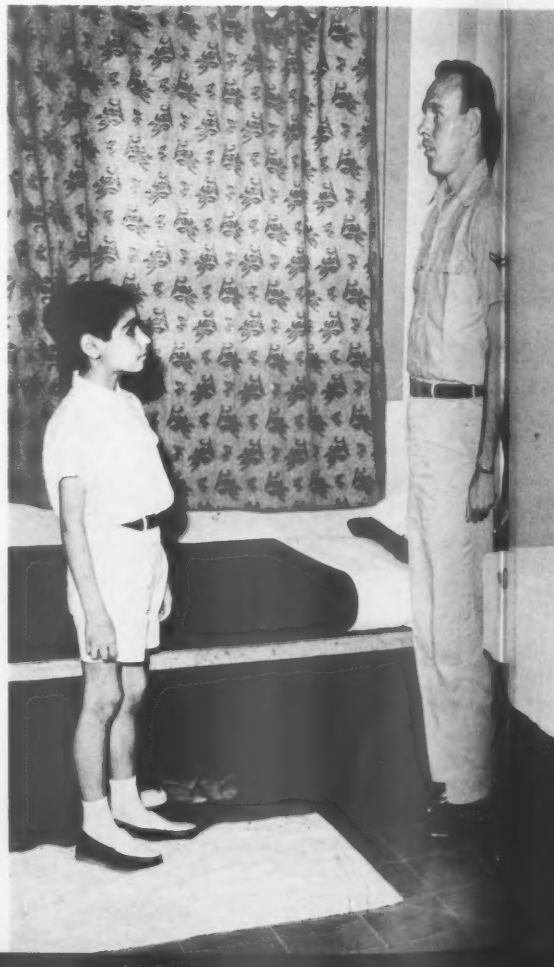
The American Air Program is now completed with the achievement that you have added to it. God bless you!

Very sincerely yours,

Fernando Castradeza, Madrid.

Lately Andres doesn't respond to the drugs as he once did. Now there are blood transfusions every three days, but the Installations Squadron and the other airmen at Zaragoza make sure there is no shortage of donors. Andres knows he is sick, but he does not know why. His father and mother haven't told him or his sister. They would find it hard to understand. Sometimes he has bad spells and he seldom eats well, but he is happy and he loves his American airmen.

That they love Andres is unquestioned, and God willing, this year Andres Cuello of Zaragoza will have the biggest Christmas of any boy in the world.



A/3C Clarence O. Faile answers some pointed questions during Andres' inspection of the Installations Squadron barracks.

New "Chief" of Zaragoza Air Base inspects his command.

Andres, now an honorary Airman First Class of the Installations Squadron, joins Colonel Preston in a big birthday blow-out.

Andres signals a Spanish light plane the okay to cross the runway. Sgt. Caldwell Cunningham briefs Andres on the job.

Pedro Cuello, Maria del Carmen, (Andres' sister), and Mrs. Cuello.

Aided by MSgt. Victor Burkholder, Andres brings one of his airplanes in through the overcast on a perfect GCA run.

by Dave Karten *Airman Staff*

FAMILY

"A comfortable home," wrote Sydney Smith in a letter to Lord Murray in 1843, "is a source of great happiness."

Ask the average airman what he thinks of this and he'll probably tell you it's the understatement of the century. That the Air Force agrees with Sydney Smith and the average airman is revealed by its booming housing construction program today.

Since May 1 the Air Force has been adding 100 new homes per day to its inventory. This accelerated program, to extend through December 31 of this year, will add up to 24,000 houses completed during the eight-month period.

But this is only a part of USAF's effort to meet the worldwide requirement of 338,000 family units for officers and enlisted men authorized government quarters. There is also a need for 129,000 units to house lower grade airmen for whom construction of family housing is not currently authorized.

Today, some 68,000 Air Force families have purchased or are renting suitable housing in communities adjacent to air bases. Others live in 104,000 government-owned or leased quarters.

But this only partly solves the need for more housing. So the Air Force is moving ahead—to the rhythmic tempo of roaring bulldozers, pounding hammers and singing saws—to improve living conditions for all Air Force families. How? Through the Capehart-Rains housing program (named for the Senator and Representative who sponsored the congressional legislation) which represents the large part of the current $1.2 billion Air Force family housing program, and improvements to existing units.

On June 30, 1959 there were 61,000 Capehart units in the housing program—16,000 completed and 28,000 under construction—located at 95 ZI and two overseas bases. (Hawaii and Guam.) By the end of this year 22,000 of those under construction will be com-

HOUSING

Modern design living room is featured in three-bedroom duplex Capehart-Rains family housing for officers at McChord AFB, Wash.

Wherry housing area at Hunter AFB, Ga.

pleted and acceptable bids will be in for the rest, or they will be in final stages of design.

The remaining Capeharts will phase into the Air Force inventory during 1960-61. The average project consists of between four and five hundred units. The largest single development, at Plattsburgh AFB, N. Y., will provide housing for 1,685 families.

Practical Features

Most Capehart-Rains projects include single and duplex houses. A limited number of multiplex two-story buildings are used in the high-cost areas located in the Northern United States. As a general rule, the Air Force has patterned its housing after nearby civilian residential homes with the best design and most practical features. Exteriors vary in appearance; and homes are situated for striking, individual effect. Offstreet parking (either carports or garages) is included wherever cost limitations permit.

Typical of the new Capehart projects is the one at Holloman AFB, N. Mex., where a 400-unit, $6.5 million residential area will soon help solve the living space problem at that base. In other parts of the country similar projects are surging toward completion.

No Luxury, But No Monotony, Either

The Air Force shuns luxury in designing Capehart-Rains housing, but tries to avoid the monotonous appearance that once characterized military housing. Every project planned today considers local climate, customs, construction methods, and building materials. Air conditioning, for example, is included in homes situated in warm, tropical climates.

Wherever possible, local architect-engineer firms are selected for their demonstrated ability and competency in designing housing projects. Site planning takes into consideration topography and proper use of existing terrain in order to keep land preparation and construction costs at a minimum. Capehart-Rains homes, because of the housing act regulations, can cost no more than an average of $16,500 per unit. In high cost areas the $16,500 buys a minimum of house since much of the cost must go for heating units, insulation, basements and the like.

Since the end of WW II the USAF has built or acquired through Wherry and Capehart programs some 60,000 residences in the United States. An additional 9,277 homes in foreign countries have been procured.

The Wherry houses now being improved to meet USAF standards are getting the "full rehabilitation treatment." At Chanute AFB, Ill., for instance, this includes addition of porches and utility rooms, conversion of two bedroom duplexes to four bedroom homes, installation of attic and exhaust fans, soundproofing, interior wall repainting, adding garbage disposals, 220 volt outlets for dryers, master TV antennae, and general repair of the residences.

Overseas Housing

In overseas areas, Surplus Commodity and Rental Guarantee programs are increasing the housing inventory by another 10,000 units. And the Military Con-

struction Program, using appropriated funds, is adding a small amount of housing at some of our ZI bases as well as at isolated locations overseas.

The relatively small Surplus Commodity and Rental Guarantee programs provide family housing units overseas without large expenditures. As of June 30, 1959 the Surplus Commodity program called for 12,160 units overseas, of which 3,675 had been completed and some 2,068 were under construction. The Air Force expects that by June 30, 1960 there will be 1,991 additional units completed and 1,566 more under construction.

Rental Guarantee housing is now in use by about 3,386 families overseas. These units are owned by residents of the foreign country and were built for the Air Force in return for a guarantee of 95 percent of the possible rents for a period of from five to 10 years. The Air Force member receives his Basic Allowance for Quarters (BAQ) and pays rent directly to the owner. Present plans call for construction of approximately 1,250 additional houses under this plan.

The program to declare certain public quarters inadequate provides relief to USAF personnel, who in the past, have been required to pay their entire quarters allowance for substandard housing. Of the 12,500 quarters investigated to date, 7,000 have been found inadequate. Rents have been reduced for these homes.

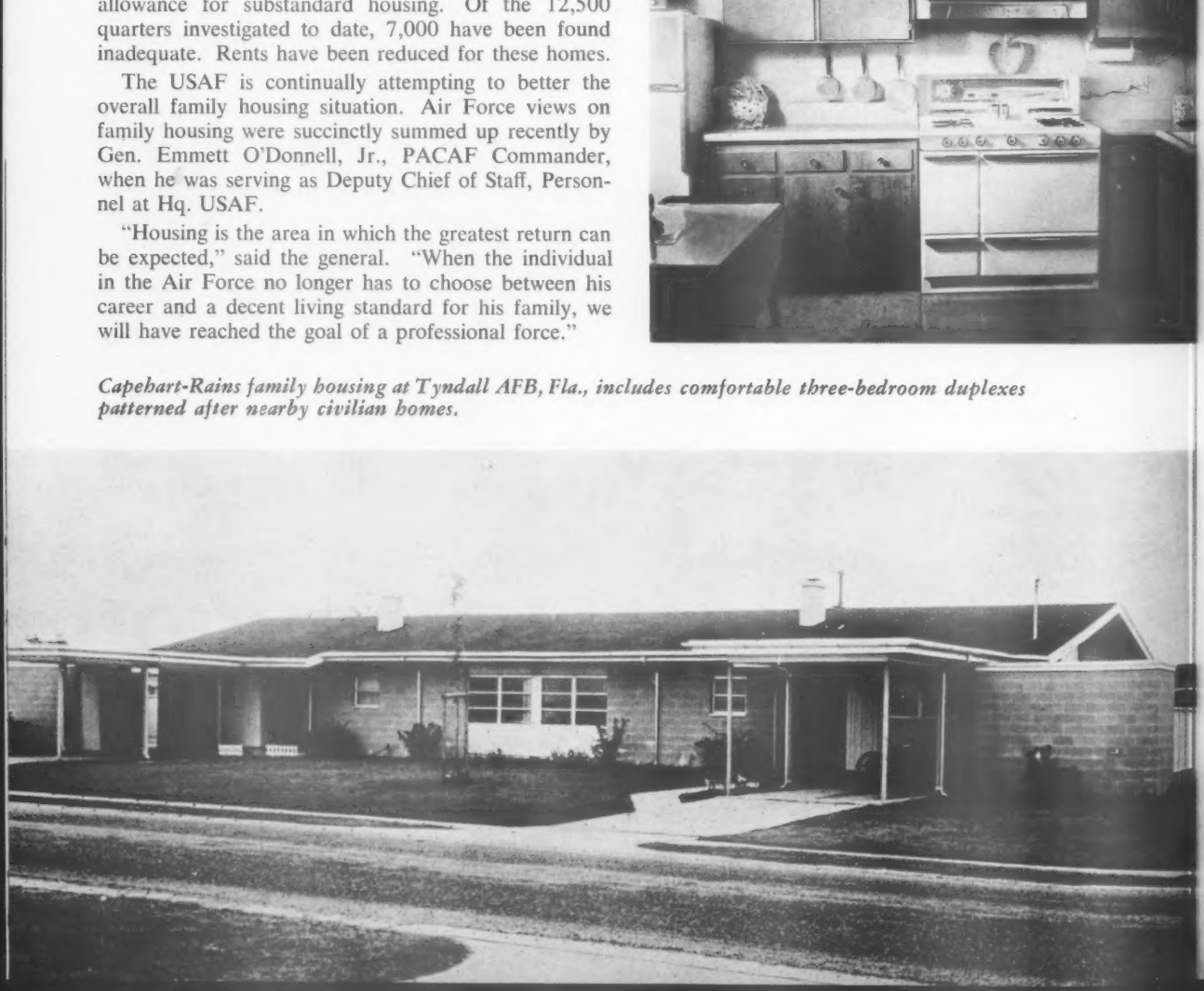
The USAF is continually attempting to better the overall family housing situation. Air Force views on family housing were succinctly summed up recently by Gen. Emmett O'Donnell, Jr., PACAF Commander, when he was serving as Deputy Chief of Staff, Personnel at Hq. USAF.

"Housing is the area in which the greatest return can be expected," said the general. "When the individual in the Air Force no longer has to choose between his career and a decent living standard for his family, we will have reached the goal of a professional force."

Spacious Capehart-Rains house is one of 450 units under construction for NCOs at Chanute AFB, Ill. An additional 180 homes are programmed for 1960.

Sparkling kitchen in Capehart-Rains home at Oxnard AFB, Calif., combines functional design with roominess and ample cabinet storage space.

Capehart-Rains family housing at Tyndall AFB, Fla., includes comfortable three-bedroom duplexes patterned after nearby civilian homes.



WHAT'S THE WEATHER?

—in Moscow or Magnitogorsk

"Muscovites are enjoying good weather today, while farmers at Magnitogorsk in the Urals are having it cold."

The statement by Capt. George Castle, Larson AFB's weather station, after scanning a northern hemisphere weather map received by facsimile wire photo, is probably true. He's a forecaster with Detachment 18, 9th Weather Group, part of the USAF's global Air Weather Service (MATS) which can tell you what the weather is like anywhere in the world at any particular moment.

Are bombing missions the purpose for which these reports are to be used? Do we have weather observers in Russia? The answers to these questions, according to Captain Castle, are no and yes.

We need general Russian weather information because the weather of the entire northern hemisphere is interrelated. To know where the high and low pressure areas are in Russia helps predict the build-up of weather systems affecting North America. As for having weather observers in Russia, the captain says we do.

Russia, like most countries except Red China, is a member of ICAO (the International Civilian Aviation Organization) and submits weather reports to the Global Weather Network. Representing ICAO in the U. S. is the Joint U. S. Weather Bureau-Air Force-Navy weather center at Suitland, Md., which is the direct source of many weather maps received on the facsimile machine. Weather maps for the U. S. are received every 20 minutes—maps of Canada, Alaska, Japan, and other areas every hour.

Basically, weather forecasting consists of data observing, reporting, receiving, and analyzing. A mass of information is received daily in the weather station via teletype, facsimile machine, and pilot reports. Station forecasters evaluate this along with data generated within the station. Forecasters also take into account the station's topographical location. At Larson, for example, where water-laden clouds drop moisture on the western slopes, the Cascades produce a dry climate, while the basin position often allows fog to linger until noon by keeping the winds above.

Operations at Larson's weather station are broken down into two sections: forecasting and observing. Forecasters, working eight-hour shifts, are on duty around the clock. The duty forecaster supervises station activities and makes weather observations in the absence of the observers, who have a variety of jobs to perform. Besides operating weather instruments like the station's ceilometer (to determine height of clouds), barometer (air pressure), and hydrometer (humidity), they use a variety of communications equipment—teletype and facsimile machines, teleautograph, and "hot line" telephones.

Because of jet fighter, tanker, and bomber operations at Larson, the weather detachment's work is vital. Every time a light flashes on in the station it indicates a jet has taken off. Until the light goes out (signifying the plane has landed) weather personnel must be on special alert to evaluate any weather changes and instantly relay them to the pilots. A jet plane's rapid fuel consumption allows little margin for error. Safe jet operation also requires that pilots know the temperatures at high altitudes. Jet pilots look for coldest altitudes because the cooler the temperature the less the stress on their aircraft when going through the sound barrier.

The 16 weathermen of Detachment 18, like AWS weathermen the world over, are a dedicated group. Although they deal with many intangibles in their operations, they are confident in their skill. Working with their counterparts in similar operations around the globe, the men of Air Weather Service provide invaluable support that touches every aspect of the Air Force mission.

Sir: *The back cover of* THE AIRMAN'S *August issue is as inspirational a piece of writing as I have seen in a long time. Congratulations to Captain Sturm and the staff. It should be clipped, framed, and hung in a place of prominence on every base.*

Leroy Spruill
Hawthorne School of Aeronautics

★ ★ ★

RESERVE TRAINING

Sir: *As a reservist, I don't always get a chance to read* THE AIRMAN *when it first comes out. Recently I came across a copy of the March '59 issue with the article* Calling All Marksmen. *I would like to know if reservists are eligible to attend the Marksmanship Center at Lackland?*

Pascual Lizano
La Miranda, Calif.

If your commander determines that you require the Marksmanship Instructor Course to maintain or increase your proficiency in your mobilization position, he may request a space in accordance with AFR 50-41.

★ ★ ★

WHAT'S IN A NAME?

Sir: *In past issues of* THE AIRMAN, *I have noted the use of various terms in identifying bases. These include AFB, AB, and AFS. What is the criterion for determining the correct designation?*

Arthur P. Sommer
Red Bank, N. J.

AFR 87-5 governs the use of these terms. Paragraph 7a(1) reads, "Air Force Base—This term, when preceded by a geographical name . . . or the memorialization name . . . will be used to describe an installation from which aircraft operations can be conducted and which is capable of providing sustained support for major activities of importance to Air Force combat, combat support, and training missions." Farther on in this same regulation, however, a restriction is cited which expressly forbids the use of the term "Force" in identification of 99-year lease bases. Other portions of the regulation also outline the basis for the use of the terms Air Force Station, Air Force Auxiliary Field, and Air Force Plant.

★ ★ ★

SURPLUS SALES

Sir: *On page 32 of your June issue, you replied to a letter on surplus sales. While correct in its content, there is one additional factor which, I believe, is most important and, because of your wide dissemination, I think should be brought to your readers' attention. I quote from paragraph 31c, AR 755-7, "The sale of surplus personal property will not be made to officers nor enlisted personnel of the Armed Forces on active duty, civilian employees of the military departments to include the Department of Defense, nor their immediate families, dependents, or agents, except where sales are made at retail to the general public on fixed price basis."*

Capt. I. M. deGarmo
Cameron Station, Va.

★ ★ ★

MOST EXPERIENCED?

Sir: *I note in the article* They Jump for Your Life *in the August issue of* THE AIRMAN *that MSgt. George Post is characterized as "the most experienced test-parachutist in the Air Force."*

One of the units of the Flight Test Center is the 6511th Test Group (Parachute) which operates at the former Naval Auxiliary Air Station in El Centro, California. CWO Lawrence Lambert of that unit completed his 700th parachute jump last July. In addition to his 700th jump he was awarded USAF's first parachutist badge in competition with all other USAF parachutists. In 1940, Mr. Lambert, then a sergeant, received the Cheney Award for testing the USAF's first ejection seat system. Lambert's jump mate, SSgt. James Hotell, has recently logged his 300th jump at El Centro.

Col. Charles A. Brown
Edwards AFB., Calif.

One way to get the facts is to make a mistake. Our apologies to Lambert and Hotell. Our thanks to Col. Brown for telling us about them.

MSgt. George Post

★ ★ ★

PROTEST

Sir: *I would like to voice a modest protest regarding the manner in which USAF is awarding E-8 and E-9 grades. Why such a disproportionately high percentage of the new stripes for the so-called critical fields?*

MSgt. Stanley Tanenzaph
APO 196, New York, N. Y.

Authorizations for the new pay grades were put in manning documents in accordance with criteria established in AFM 26-1. Such allocations are an across-the-board percentage, based on existing authorizations in all career fields. Consequently, the bulk of these new stripes are allocated to the fields in which the majority of USAF personnel are assigned.

★ ★ ★

CORRECTIONS

Sir: *On page 12 of the March 1959 edition of* THE AIRMAN, *you have identified one of the women pictured as Mrs. Ted Egan. This is in error; her name is Mrs. Ted Bagan.*

Name Withheld

Thank you! And our apologies to Mrs. Ted Bagan.

Five Seconds to Drop *(See page 32)*

AIRMAN'S WORLD

Briefs from USAF, world wide

Five Seconds to Drop

The striking photo on page 31 shows North American's X-15 seconds before drop time, and contains all the elements of the latest X-series testing program—the bowed wing of the "mother" B-52, the F-100 chase plane, and the nestling test vehicle itself, with test pilot Scott Crossfield at its controls.

Man moved closer to his ultimate goal of orbiting flight earlier this fall with successful completion of the first powered X-15 mission.

Suds in Your Eye

The local Base Fire Chief, SMSgt. William Hill, Jr., assisted by two Civilian Service Units noncoms, has perfected a new foam laying device which promises extensive savings in lives, time, and money.

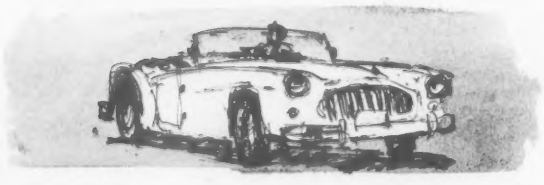
By putting their heads together, the trio constructed a simple rig consisting of three wheels and a pipe with a small plate at one end. Under high pressure, foam is forced out of the pipe, strikes the angled plate, and spreads over a wide area.

In tests, the new unit has laid a white, foamy carpet 2,000-feet long and 54-feet wide in approximately 10 minutes, less than a quarter of the time previously required. Equally important, only two trucks are now required to do the job which formerly tied up all the base crash equipment.

Reports indicate that Sergeant Hill and his two aides Assistant Fire Chief, CSU MSgt. Guenter Zobel, and Fire Extinguisher Maintenanceman, CSU SSgt. Theo. Schmidt, expect to have their invention adopted commandwide in the near future.

The Photogram, Spangdahlem AB, Germany

Auto Shipments



Shipment of privately owned motor vehicles from foreign countries to the ZI is the subject of a recent joint Army-Air Force message.

For Air Force members, specific references are made to Part 9, AFM 75-1 and to AFR 75-57. USAF personnel contemplating the purchase and shipment of a foreign car should pay particular heed to these publications.

To assure duty-free entry of vehicles purchased in foreign countries, owners must be certain that they are returning under "competent" orders as outlined in AFR 75-57. Additionally, the vehicle must actually be in the owner's possession, or he must have been in the area of purchase to take possession of the vehicle and arrange its delivery to the port.

Those vehicles purchased and shipped prior to issuance of proper orders or delivered after departure of the owner from the overseas area will not be considered exempt from customs duties.

Finally, the message reads, "Members or employees returning new foreign passenger automobiles which are not exempt from customs duties will be assessed duty at the rate of 8.5 percent of appraised value as determined at the port of exportation. Customs tourist exemptions of $500 for each returning member of the family may be applied if they have been overseas in excess of 12 days. Where this exemption applies, customs regulations prescribe that such vehicles cannot be sold for three years after return to the U. S. port of entry without incurring penalty."

The Impossible

Inspecting personnel from Warner-Robbins AFB, Ga., were checking landing gear struts of a Lockheed C-130 *Hercules* at Evreux-Fauville AB, France, when their rotating gear box became inoperative.

The local machine shop was called upon to repair the mechanism, but inspection by A/2C Raymond DeBenedetto, 317th Consolidated Aircraft Maintenance Squadron, proved that it was beyond repair. A new box, ordered from the States, would take at least two weeks to arrive. DeBenedetto took a second look at the problem, then promptly sat down and ingeniously designed an improved version of the inspection device.

Working through the weekend, Airman DeBenedetto saved time, money, and manpower by having his personalized version of the necessary box ready for the inspection team on Monday morning.

MAAG Duty

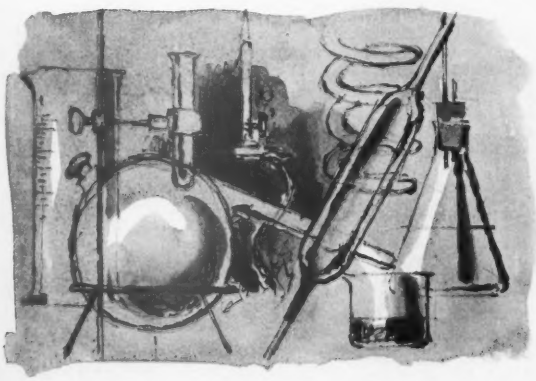
Officials in USAF's Selected Assignments Branch, Warrant Officer and Airman Assignments Division, are looking for volunteers for Military Assistance Advisory Groups.

Normally swamped with applications for the limited number of spaces, personnel officials indicate a dearth of requests for areas that many people believe to be lacking in attributes. Two in particular—Taiwan and Vietnam—have posed a particular manning headache.

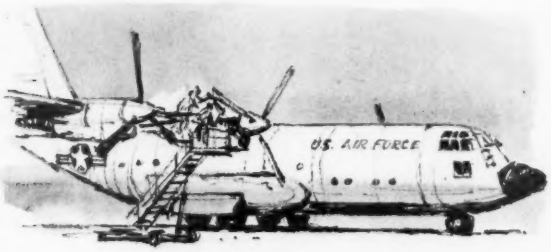
In both cases officials indicate that duty with MAAG forces affords an "above average" tour. Additionally, it is agreed that accepting duty in such "isolated" areas as those listed above, is one of the best ways to enter MAAG duty. As with any other overseas assignment, a "selective" billet generally follows an "isolated" tour.

Applications should be submitted under procedures outlined in Part II, Chapter 9, AFM 35-11.

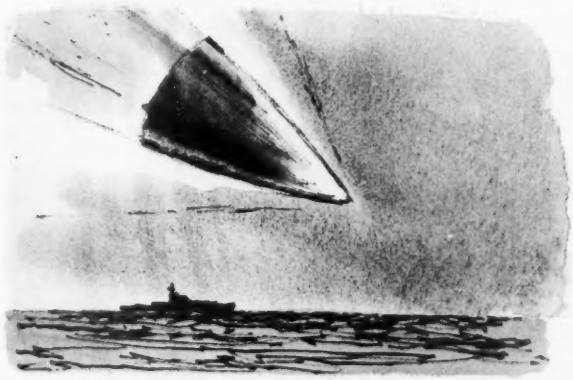
Bits of Blue



. . . USAF has adopted a new oil additive—cyclohexanone—which is expected to save thousands of dollars annually. Tested for two years on aircraft at Malmstrom AFB, Mont., and Barksdale AFB, La., the chemical detergent will be used in all Air Force reciprocal engines in the future.



. . . Five mechanics at Rhein-Main AB, Germany, recently established what they believe to be an engine-change record for the C-130 *Hercules*. The record—slightly over five hours for the four engines.



. . . ARDC has awarded a $73 million contract to the Advanced Development Division of AVCO Corp. for design of an advanced reentry vehicle nose cone.

. . . Stray dog packs in Alaska are a major menace, particularly during winter months. APs in the 49th state recently received a helping hand in their control when they were issued "Cap-Chur" guns—an air rifle which fires a dart loaded with sleep-producing serum. The injection, although harmless, renders the animal temporarily unconscious, thus allowing it to be captured without danger to the AP.

Happy Ending

A/1C Richard Morris, a basic student in the 3441st School Squadron at Lowry AFB, Colo., recently received a DR.

He and several of his friends made the trip into neighboring Denver on a modified busman's holiday one evening. Object—to visit the *Titan* missile display at the city's civic center.

As the group walked across the display grounds, Airman Morris was stopped by two air policemen assigned to the area. They checked his pass and ID card, then one turned to his partner and said, "Let's write him up."

Despite Morris' protests, he was handed a DR—for being neat and clean and presenting an appearance which reflected favorably on the Air Force.

The following Saturday morning at inspection, the young airman was called from the ranks and the citation, which had been forwarded to his unit commander, was read to the assembled troops. DR, in this case, meant Deserved Recognition.

Court Count

USAF's hardcourt Falcons will open their 1959-60 basketball season on the first Friday night next month. The slate calls for 21 games and introduces four new opponents, Nebraska, UCLA, Arizona State, and Oklahoma State.

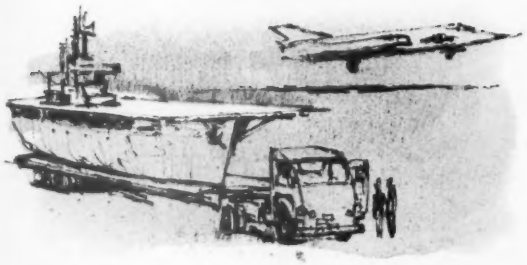
The silver and blue will attempt to improve on a fine 14-9 mark of a year ago. Coach Bob Spear will be heading the squad for his fourth year. To date, his overall tally shows 42 wins against only 25 defeats, a remarkable record considering Academy height limitations and the calibre of the opposition.

The 1959-60 schedule:

Date		Opponent
Dec.	4	Creighton, there
	5	Nebraska, there
	9	Denver
	12	Notre Dame
	19	Oklahoma State
Jan.	7	Omaha
	9	Loyola of Chicago
	13	Western State, there
	16	Montana State, there
	20	New Mexico Highlands
	23	Wyoming, there
	29	New Mexico
	30	UCLA
Feb.	3	Wyoming
	6	Marquette
	10	Colorado Mines, there
	13	South Dakota, there
	20	Arizona, there
	22	Arizona State, there
	27	Eastern New Mexico
Mar.	2	Regis

THREE MUSKETEERS might well be the descriptive, if somewhat square, title of a trio of instructor pilots assigned to Reese AFB, Tex. With the exception of brief periods, Lts. Ernest Bedke, Edward Claiborn, and John Tall have trod exact paths to parallel careers since 1951. That fall, the three entered the University of Idaho. There they joined the school's AFROTC unit and, after graduation, entered the Air Force and completed pilot training. Although they have experienced brief periods of separation since donning the uniform, the men were recently reunited at Reese.

All at Sea



"I don't know, Mac. Our orders are to deliver this to Lt. Schaub."

Here's a poor little mixed-up story, from the *Geiger Times,* Geiger Field, Wash.

Lt. Robert Schaub, USN, is presently assigned to "sea duty" with the 498th Fighter-Interceptor Squadron, at the northwest base.

One of 40 Naval officers serving with USAF on an 11-year-old exchange program, Lieutenant Schaub has served as an air defense interceptor pilot at Geiger since early 1958, and will complete the standard two-year tour in March.

Although he is being credited with a sea tour while with USAF, the lieutenant is obviously not as mixed up as the story. He recently became the first Navy officer to check out in the Convair F-106, newest addition to U. S. aerial defense forces.

Posse Pilgrimage

Twenty Riverside County deputy sheriffs recently trekked to Graduation Rock in the San Bernardino Mountains near March AFB, Calif., for scaling exercises. The journey climaxed a nine-week Mountain Rescue Course, taught to the deputies by March Rescue and Survival Training Section instructors.

Offering its training as a community relations gesture, base officials received a positive response from 20 deputies, all of whom voluntered to take the course during their off-duty time.

The course provides training in the use of rescue equipment, mountain walking, repelling, and rope and litter techniques. Other phases of survival procedures were also offered in addition to the mountain course.

The Beacon, March AFB, Calif.

SAFER TRIPS down that lonesome road of long-range early warning missions are in store for crews of Lockheed RC-121 *Super Constellations* that patrol the North Atlantic and Pacific areas. Their aircraft are being equipped with wingtip fuel tanks which are covered with rubber-coated nylon blankets to protect against lightning. Six evenly spaced metal strips are designed to carry off any static charge which might build up during long over water jaunts. Because of predetermined courses and altitudes and the maze of radar equipment installed in such aircraft, planes on early warning missions have proven to be more susceptible to lightning damage.

NIGHTMARE FOR THE BOLD, a 53-minute traffic safety film goes into all USAF film libraries this month. The feature movie has been described as a "psychological impact film" and was produced for the office of the Assistant for Ground Safety, Hq USAF, by the Atlas Film Corp., under APCS supervision.

You Ask It

Q. I have a $10,000 WW II GI insurance policy presently in force. I want to add the total disability rider to this policy. Should I become disabled and begin collecting that $100 a month, would I have to go on paying the policy premiums to assure my family's protection?

A. No. As long as you qualify for disability payments, it is possible for premium payments to be waived with reduction in the amount of protection presently afforded your family under the terms of the policy.

Q. I am considering paying my GI insurance premiums on an annual basis. If I should die after making such a payment, would the unused portion of this premium be returned to my beneficiaries?

A. Yes. VA would refund any money not applied to premium payments which have already become due.

Q. I recently received a GI insurance dividend statement indicating I have a substantial credit accrued. Will I continue to receive premium-due notices or will premiums be deducted from this credit?

A. You will continue to receive the premium-due notices. These dividend credits are used only to prevent a lapse of policy.

Q. I recently purchased a house, through the GI bill, near where I am presently stationed and have been planning to pay off the mortgage as rapidly as possible. Recently, however, a neighbor of mine told me that I would have to pay a penalty in the form of additional interest. Is this true?

A. No. The GI loan law states that no penalty charges may be made if the loan is paid off faster than was originally contracted for. However, each extra payment must be at least $100 or a full monthly payment, whichever is smaller.

Air Age Library

Missiles and Rockets

Man in Space: The United States Air Force Program for Developing the Spacecraft Crew, edited by Lt. Col. Kenneth Gantz, USAF, (Duell, Sloan, and Pearce, $4.00). Each of the book's 18 chapters has been written by an Air Force expert in the subject field, and topics range from a history of space medicine through space vehicles and problems such as weightlessness.

Dictionary of Guided Missiles and Spaceflight, edited by Grayson Merrill, (D. Van Nostrand, $17.50). A comprehensive, authentic dictionary of words and terms most commonly used in the fields of guided missiles and spaceflight. Terms are explained in detail and many definitions are illustrated.

Spaceport, U.S.A.: The Story of Cape Canaveral and the Air Force Missile Test Center, Martin Caidin, (E. P. Dutton, $4.95). A highly illustrated and complete account of the history, operations, men, installations, and missiles which have combined to make up this vital USAF center.

Professional

The Airman's Guide, (The Stackpole Co., $3.50). A new and revised ninth edition of this useful reference manual for enlisted personnel.

Logistics in the National Defense, Henry Eccles, Adm., USN, Ret., (The Stackpole Co., $5.00). Three main themes are stressed: the nature of modern war as a spectrum of human conflict; the relationship between strategy and logistics; and the role of logistics as the bridge between the national economy and combat operations.

BY THE HEAVENS IN WHICH MEN FLY

. . . the flight surgeon swears to be ingenious and resourceful;
to find cures where there are none;
to use all the knowledge and skill at his command;
to attempt the impossible in his daily tasks to insure the future usefulness of countless airmen whose value is immeasurable.
All this he swears by the heavens in which men fly.

(From the Flight Surgeon's Oath)

by MSgt. Edison T. Blair, *Airman Staff*

That man will venture farther and farther into space is a certainty. Just as certain are the biological, psychological, physiological, and other human problems that he faces in penetrating this uncertain frontier. For despite his amazing scientific progress, man, in his relatively short history, has never been able to change himself. In fact, he hasn't even been able to shorten his reaction time and has trained himself to make only slightly better decisions.

Down through the centuries man has lived under the protection of a benevolent, 20-mile deep atmosphere composed of life-supporting gases, water vapor, and other elements essential to his life. This atmosphere has shielded him from the burning rays of the sun and cosmic radiations from space.

Burdened with one "G" of gravity, man and all other animal life on earth live within the innermost five miles —one quarter—of this blanket. Until now practically all man's flights have been confined to the innermost half and only the hardiest air pioneers have penetrated beyond the halfway point of the atmosphere. But man's insatiable curiosity and nimble brain have now mothered a technology that has created machines capable of going where he has never gone. Thus challenged, he will go and for the first time in history the human aspect of flight is more important than the hardware of man.

Even before the Wright brothers flew it was known that the upper atmosphere had biological and physiological effects detrimental to life. Within four years after the Aeronautical Division of the Army Signal Corps was established, pilots of the new flying machines were ordered to take special physical examinations. Before military aviation was 10 years old an Aviation Medical Research Board had been appointed to study the medical problems of flight, and design suitable breathing apparatus. The board organized a Medical Research Laboratory in 1918 and the physicians devoting themselves to the health and well-being of flyers were identified as flight surgeons. A year later a regular course of instruction for flight surgeons was started. While they taught, staff members studied the heart, circulation system, and the oxygen tolerance of flyers, doing much of their research in a cylindrical low pressure chamber eight feet in diameter and 10-feet high.

As technology advanced and man flew ever higher and faster this medical research program kept pace to help man meet and overcome the physical, mental, and environmental problems of flight. The laboratory was renamed the School of Aviation Medicine in 1921 and last month, 10 years after a Space Medicine Division had been established, the USAF created the Aerospace Medical Center at Brooks AFB, Tex.

The USAF Aerospace Medical Center is the primary source of instruction for Air Force personnel specializing in medical problems of flying and methods of medical administration. It is also the principal Air Force laboratory for research in the medical conditions of flight.

For the past 27 years most of these functions were carried on at the Randolph AFB headquarters of the School of Aviation Medicine. However, since the Korean conflict most of the training of technicians, administrative, and medical supply people has been done at Gunter AFB, Montgomery, Ala. In July, the research, and part of the academic branches of the school moved into a new $12 million complex consisting of seven ultra-modern buildings at Brooks AFB in southwest San Antonio. Nearly 40 courses for enlisted medical personnel and for those officers not directly concerned with aviation medicine remained at Gunter. The name USAF Aerospace Medical Center became effective with the transfer of the school from Air University to Air Training Command last month and the Lackland AFB Hospital became an integral part of the expanded center.

The 1,000-bed hospital will provide facilities for students and staff to study and treat rare and difficult medical problems of flyers referred to them from the field.

Addition of the hospital brought into being an aeromedical center envisioned in 1946 by Maj. Gen. Harry G. Armstrong, commandant of the school then, and later, surgeon general of the Air Force. General Armstrong's proposal was to build the center from the ground up, and even then it was intended to include facilities for the Space Age. Maj. Gen. Otis O. Benson, Jr., present commandant of the center, was chairman of the planning board and for the past 13 years he has worked toward the complete center. Until now the hospital had been deleted for budgetary and other reasons.

The Bottom Rung

Since man cannot be changed, his environment must be if he is to continue his first-hand exploration of the universe. Today the facilities of the USAF Aerospace Medical Center are devoted to solving the problems of future flight through basic thinking and fundamental research. That it is not a job for physicians alone is evidenced by the staff of the center.

Director of Research is Colonel John E. Pickering, a former research chemist and mining engineer who did advanced studies in nuclear chemistry and physics at the University of Chicago graduate school before coming to the center in 1948. A line officer rated as a senior navigator, he has also served as weather officer. The colonel has written books on such diverse technical subjects as weather, navigation, and the sugar chemistry of rice hulls. Last year he earned the Legion of Merit for work on a radiation theory that contributed much to our defense capability against nuclear weapons and opened a new field of radiation research.

Colonel Pickering's research directorate has 166 tasks currently under investigation. Eighty-eight of these projects are being studied at the center's facilities, 74 under contract to civilian colleges and research laboratories, and four have been undertaken by medical personnel at other Air Force bases.

One of the weightiest problems under study is that of weightlessness. In a vehicle orbiting the earth at five miles per second, a speed that would keep it in orbit, centrifugal force exactly counteracts the force of gravity so the vehicle and its contents weigh nothing.

Sandwiched between space simulator "terrella" and a blackboard program of a "space run," astroecologist Steinkamp, right, talks business with equipment contractors.

Just what effect this weightless state would have on a man subjected to it for hours or days is still one huge question mark because it can be simulated on earth for only a few seconds.

The intense light produced by a nuclear explosion is another serious problem under scrutiny. Equal to that of the sun, this light can cause destructive retinal burns in less time than a man can blink. Sunlight in space, unfiltered by an atmosphere, will likely have a similar effect. Research includes study of preventive measures. And there is still much to learn about depth perception and the ability to judge speed from a supersonic aircraft.

A more mundane problem—jet noise that can permanently impair hearing—is under investigation. The center has noise chambers and a room so quiet you can hear your own heart pulsing. Here research is done under carefully controlled conditions. Other elaborate testing equipment has been designed and even built by physicians at the center who were treating colds and carbuncles not too long ago. A machine shop staffed by imaginative, skillful precision mechanics is an important part of the center.

The Department of Microbiology has developed tests to quickly identify micro-organisms and the antibiotics to treat them. Volunteers swing themselves into motion sickness in order to try new drugs to combat this malady. New techniques of analyzing blood samples have been developed by the Department of Pharmacology and Biochemistry that detect the presence of fatty lipoproteins in the blood. These substances have been associated with certain arterial conditions like atherosclerosis. If these tests will indicate a tendency toward such disease before they are otherwise apparent, not only the Air Force, but all mankind, will benefit.

Thousands of Air Force personnel have yearly electrocardiograms. These EKG results have been carefully examined, tabulated, and placed in a huge EKG repository at the center thus adding to the world's knowledge of the human heart and circulatory system. Some of these EKGs have disclosed persons who have had otherwise undetected heart attacks and are still flying. With this knowledge, better systems of examination can be taught that will catch such cases earlier and perhaps lower the aircraft accident rate and save lives. A similar repository is planned for electroencephalograms—a record of electrical activity of the brain —that will reveal reactions to various stresses.

But there isn't room enough here to cover the multitude of research projects undertaken by the USAF Aerospace Medical Center. Right now the staff is concerned with where the next scientific generation is coming from.

Wanted: Dedicated People

"People engaged in scientific research are not occupying positions of prestige," Col. Pickering told THE AIRMAN, "because they are not working for the stockholders. The profits of their work can't be pocketed. Theirs is a labor of love, not for money. They must make too many personal sacrifices. Too many are enticed away from the laboratory by higher pay to do jobs for which they are not as well qualified. We need more motivated, dedicated people willing to work for the betterment of mankind. We have a few, but not enough."

Space physician Strughold, left, discusses physics formulae with space physicist Oskar Ritter. Both are members of Advanced Study Group.

Part of this few has formed a unique Advanced Study Group at the center since the school moved into the new quarters at Brooks. Dr. Hubertus G. Strughold, WW II director of the German Aeromedical Research Institute in Berlin, world-renowned as the first professor of space medicine, and present Advisor for Research for the USAF Aerospace Medical Center, is ex-officio chairman of the group. Col. Paul A. Campbell, chief of the center's Space Medicine Division and former research chief, is also a member.

According to Dr. Strughold the group will be comparable to the famous Princeton Institute of Advanced Studies although its studies will be more narrowly specialized in the field of space. The ASG will be interdisciplinary, that is, it will consist not only of physicians, but astronautical engineers, physicists, biologists, botanists, physiologists, and others who can contribute to the conquest of space.

"We plan to invite some really high-powered scientists from universities and industry all over the world," Dr. Strughold said. "We will give them the facilities they need and just let them *think*. They will study, exchange ideas with their colleagues, and check every facet of space. They will analyze the current situation and advise General Benson on their findings."

The first invited member of the Advanced Study Group, Dr. Oskar Ritter, a physicist, started work early in August, filling note paper with hundreds of mathematical formulae to "clear up some old math problems for myself and others, then I have some ideas of my own to work on."

Probing the Future

Since its beginning as the Air Service Medical Research Laboratory, on through the years as the School

of Aviation Medicine, the center has attempted to keep biological and human factors research 10 or more years ahead of the hardware flyers would operate. Technological break-throughs by an abundance of research engineers have changed the picture recently.

The medical approach to man in space, Colonel Campbell says, is largely a matter of extrapolation. He describes himself as a "curve watcher" and the work of his division as an attempt to keep man ahead altitude-wise, speed-wise, and environmental-wise. His curves are based on what has happened before in the history of flight and the bits and pieces of knowledge acquired daily and plotted chronologically. From these curves they try to learn what produced the growth and from extrapolation determine what might happen to man in flight tomorrow and the day after.

He points out that from the days of open cockpits through WW II, bone-chilling cold was a major problem for flyers. With high speed jets, aero-dynamic heating became a problem. Going into space will add to aero-dynamic heat the intense radiant heat of an unclouded sun on one side of the vehicle and temperatures approaching absolute zero on the shadowed side.

Acceleration and its resultant "G" forces have progressed from measurement in statute miles per hour, through nautical miles (knots) per hour and now by Mach numbers, based on the speed of sound. In space where there is no sound and velocities may be measured with the speed of light as a denominator, the human body will be subject to even greater stresses. Man, whose body functions normally under one "G" of acceleration, would have to withstand several Gs for more than a minute to reach escape velocity; then he would become completely weightless. Returning to earth he faces deceleration Gs and possible tumbling and spinning Gs to complicate his visceral and cardiodynamics.

How much radiation can man withstand? What are the physiological, biological, and psychological requirements of the men who will explore space? Before long the flight surgeons and Aviation Medical Examiners graduated from the USAF Aerospace Medical Center, fortified with answers produced by research, will be selecting spacemen with the same care they have always given selection of aviation cadets.

New Frontiers

As a byproduct of its research, the Astroecology Laboratory headed by Lt. Col. George R. Steinkamp, is producing what will probably be a new breed of airmen. Concerned with closed ecological systems that will recycle and convert human wastes into the oxygen, food and water essential for survival during long flights through space, this section has experimented with space cabin simulators since 1954. The lab got worldwide attention last year when A/2C Donald Farrell spent a week—long enough to orbit the earth 100 times—alternately working and sleeping in the cramped simulator. A new space cabin simulator capable of sustaining two men for 30 days was installed last month. SSgt. William W. Henderson, a physiological training specialist, is NCOIC of the Simulator Section.

"I would classify Bill Henderson as the first space technician," declares Dr. Steinkamp, "because he is more than just a pressure chamber man. He has to know a lot of other things. In his job here Bill has had to learn chemistry, electronics, communications, television, and a lot of other things not normally needed by men of his specialty. He knows every facet of the space cabin simulator and he has learned it right here on the job with a little outside study. Some day he will write the space cabin specialists' test."

A/1C Earl E. Ramby is an electronics technician assigned to the simulator. He, too, has learned things never taught in electronics school. Like A/1C Robert Bruder, a psychology sociology worker specialist, who administers televised psychological tests to simulator subjects and tabulates results, Ramby must use his basic knowledge of theory to improvise and adjust to fit a situation which may change from hour to hour inside the cabin.

Capt. Jack Bates is a physiologist but he spends his time doing basic botanical experiments with one of the simplest of plants—plain old pond-scum algae. He's trying to grow a strain that will produce the most oxygen and highest food value under the most adverse of conditions—zero gravity. Apparently the hormone-like substances that enable photosynthesis to take place, travel from cell to cell in response to alternate cycles of light and darkness as well as to gravity. He also checks the white mice sealed into a plastic capsule by A/3C

Maj. Gen. Benson and his space medic chief Campbell make frequent checks on the algae culture and closed ecological systems experiments.

Pressure chamber can take men and equipment to 150,000 feet; 40,000 feet to room level in one minute.

Mercury battery, mouse-back, transmitter created by doctors and technicians leaves mouse unrestrained, broadcasts biological data.

Bob Dunaway and A/3C Ruben Gaza, his laboratory technicians. The mice breathe only the oxygen produced by an algae culture.

Colonel Steinkamp and Captain Bates foresee volunteer human subjects living in such closed ecological systems for months, perhaps inside a bubble colony man might someday build on the moon. These bubble colonies would use either photosynthesizing algae or chemicals to recycle body wastes into air, food, water, and produce an artificial atmosphere.

The End Product

All the research at the USAF Aerospace Medical Center is done by the staff and faculty with some student participation. The primary aim of the whole research program is to acquire basic knowledge that will be needed by the flight surgeon of the future. Just as he has for the past 41 years, the flight surgeon will be concerned with the health and well-being of the flyer and astronaut. Already medical doctors when they arrive, primary course students complete an introductory nine-week course in basic aerospace medical sciences, graduate as Aviation Medical Examiners, then serve a year or more in the field under supervision of a fully qualified flight surgeon.

The center's 47-week advanced course is the second phase of a five-year program of academic training and supervised practice, leading to an examination given by the American Board of Preventive Medicine which qualifies medical officers for certification as specialists in aerospace medicine. Students in this phase usually contribute to the center's research efforts and in some cases continue their research in the field. A one-week refresher course is offered former graduates of either course who have been unable to do formal study in the aerospace field for five or more years.

Except for a six-year period from 1935 to 1941 students at the school have had some flying instruction because it is felt that only by actually flying himself can a doctor fully understand problems facing aerospace crews. This largely explains the presence of the school in the San Antonio area—a USAF flight training center —at Brooks and Randolph AFBs for the past 39 years.

"A flight surgeon must fly," says Col. Hamilton B. Webb, Chief of the Aviation Medicine Division, "and he can't learn in the operating room. A doctor who flies knows better than to return a man to flying status as copilot with even the slightest impairment of vision in his right eye. Mistakes this simple have been made by those who didn't know what the job entailed."

Many diseases that affect flyers are often first manifested by plain sloppy flying, Dr. Webb contends, and a trained flight surgeon can recognize the symptoms. Dysbarism, for instance, a neurocirculatory collapse that happens fast sometimes at low pressure altitudes, is very serious, may do permanent damage to the nervous system, and is often fatal. An observant flight surgeon can sometimes forestall the disease.

A new missile support department is being added to Colonel Webb's division as research progresses and material becomes available. Because of the caustic gases, materials, pressures, and temperatures involved in missile launching, the flight surgeon's job is becoming more complex, Colonel Webb says.

"When you take a terribly toxic substance, pump it at pressures of 3,000 pounds per square inch into a chamber where temperatures are 4,000 degrees, you have a red-hot situation on your hands. You aren't working with teaspoon quantities in a laboratory, you are using tons on the launch pad."

Airmen working with such weapon systems, fully aware of their weapon's pinpoint guidance accuracy and that their isolated pad far from a population center is a prime enemy target, will certainly have morale problems. Since failure of human judgment and human error is a potential link of great weakness in such missile systems, the morale and alertness of the crews becomes a problem of the flight surgeon. The future of aerospace medicine Colonel Webb describes graphically:

"Some day we are going to put a man in a rocket ship, light a match to it, and hold our ears. What's left on earth after the explosion will be aviation medicine—space medicine will have blasted off. And when that space man gets sick and vomits in a zero gravity environment there will be a flight surgeon there to help him back onto the job and to solve the sanitation problem. Because the planet Earth is to mankind what the womb is to the child—just a starting point. I like being a part of it."

ISOLATED DUTY

curse or

It can be either; it's largely up to you

by 1st Lt. Brian T. Sheehan

Airman Staff

A MESSAGE from the personnel office told the sergeant the day he had longed for was here. His PCS orders, reassigning him overseas, had finally arrived.

As he hurried to the orderly room, visions of Wiesbaden, the French countryside near Laon, and gleaming Spanish castles ran through his mind. "Where in Europe will I be assigned?" he wondered.

The sergeant was surprised when the personnel officer, a 30-year-old captain, greeted him without the usual warm handshake and wide, friendly smile. "I'm afraid you didn't get that assignment you wanted," said the captain.

"No?" frowned the sergeant.

"No," said the captain slowly. "Here, take a look at the message."

The NCO searched for his name on the TWX. "An AC&W site in Alaska!" he exclaimed. His heart almost skipped a beat as he re-read the message, hoping for a mistake that wasn't there.

"But what about Wiesbaden?" he stammered.

"I don't know," answered the captain. "I guess the Air Force needs electronics specialists like you to help keep the show running up North."

The captain's words didn't console the NCO, his wife who had been anticipating living in Europe, or his children whom he wouldn't see for 12 months once he left home. The surprise of an isolated overseas assignment had shocked them like the unexpected death of a relative.

But, should it have? Any smart NCO would have previously discussed the possibility of an isolated tour with his family. The sergeant and his wife, in this instance, had to hurriedly solve major family problems. Where would the family live while he was gone? Would they have to watch the budget more closely now? When would the sergeant return home? These issues were settled satisfactorily, if haphazardly. The underlying premise, it seemed, was "everything will work out alright."

Still, the sergeant had added personal conflicts to face before he left for Alaska and after he got there. For the next few weeks he mentally rode a psychological elevator. The idea of going to an unfamiliar and desolate place at first made him uneasy. Later, an attitude of adventure dispelled his uneasiness with a psuedo-emotional stability—until he left home and reported to the AC&W site.

There, he elatedly realized he was "free" of nearly all immediate marital worries and responsibilities. No guilt feelings accompanied this because, after all, the Air Force *had* sent him here. Soon, however, this outlook too changed drastically. Maybe it was doing his own laundry, or possibly not having his clothes laid out every morning, but his attitude plunged from elation to despair. Now, he faced the crisis of isolated duty. He could either open beer cans, as many had done, or open books and improve himself other ways. The choice was his.

The latter choice, in almost every case, is made by men assigned to the Air Force's numerous overseas and United States isolated duty posts.

Today nearly 20 percent of all Air Force personnel stationed overseas are based at "hardship" areas which lack normal working conditions, living facilities, climate, and closeness to the organized society Americans are used to generally.

These so-called "hardship" areas extend from North Africa to the Far East and from the Arctic to the South Pole. Between these sweeping coordinates lie scores of remote sites. Each has its unique isolation characteristics and climate. Only two men maintain some of these posts while several thousand are stationed at bases like Thule, Greenland.

rblessing?

painting by Robert Fawcett

Tours Are Short

The length of tours at these sites generally ranges from six to 18 months. Three-fourths are for a period of 13 months or less. Early warning radar sites and communications units make up a large majority of these stations. Together they comprise a globe-straddling network of vital posts necessary to the Free World's defense.

But why, the question has often been asked, do some men get assigned to sites while others never come within a thousand miles of them? The answer, according to Hq USAF personnel officials, is that it takes a required number of specially qualified people to man these stations.

By virtue of their AFSCs, highly-skilled technicians are more likely to be assigned isolated duty than others. However, everyone on active duty is eligible for selection. But, AC&W controllers, communications operators, radar experts, and electronics specialists are more important at a site than a base newspaper sports editor. Most sites have tons of complex electronic equipment. They don't usually have base newspapers.

The broad, bold fact that there can be detriments to isolated duty is exemplified by the case of an airman who was recently assigned to a remote area in South Korea. After he left home his wife couldn't balance the family budget. She got in such bad financial trouble her husband had to return home on emergency leave and iron things out.

This, fortunately, is a rare case. An NCO sent to a small island for a one-year tour is a more typical example of a man on remote assignment. He left his family with relatives in California. March AFB was nearby and his wife and children used the BX, commissary, hospital, and other facilities there. His family problems were minimum; he had visited an Air Force Family Assistance Center and received good advice.

Nevertheless, family separation, it is acknowledged, poses problems. However, when it comes time to return home the man on isolated duty does get reassignment breaks.

A master sergeant based at a small site in Turkey recently neared rotation time. In Hq USAF his name was listed among all overseas returnees for August, 1959. However, the letter "I" before his name designated him as a person at a remote station. This meant if he was qualified and there was an opening at the base of his choice he would get the job there before anyone else returning home. Only another isolated duty returnee could compete with him.

In fact, this sergeant had five different choices of ZI assignments. First he could pick two bases of choice, then a state of choice, and finally two areas of choice. He evaluated the command needs in his specialty and got exactly what he wanted.

How Men Adjust

But, aside from leaving for and returning from isolated duty the most important issues concern a man's reaction to his new environment. Must he face insurmountable hardships? Will he be able to adjust to his new job? Will he be plagued with isolated duty assignments the rest of his Air Force career?

A 35-year-old Air Force captain who spent five years in the Arctic from Saglek, Labrador to Baffin Island, and Thule AB is almost an expert on problems inherent to isolated duty. "It took some doing but I made my tours in the North country pleasant," said the captain. One thing he did was work longer hours and put more effort into his job. "My mind wasn't burdened with normal family problems and this allowed me time to improve my professional abilities," he said. He helped pioneer new air-drop techniques in the Arctic.

The captain viewed his Arctic duty tours as most do

Aircraft with mail and supplies is welcome, but its departure only emphasizes the loneliness.

—a necessary evil of military life. At the same time, however, he learned an important secret of living. "When you are isolated you are forced to work close to others," he said. "You learn to accept their problems as yours and discover togetherness. Understanding comes next," said the captain. Today he thinks he's a more effective leader because of his Arctic experiences.

An airman second class assigned to a radar site in the Aleutian Islands felt he benefited from his overseas experiences, too. "I didn't know what I wanted from life before I went there," he said. "For the first time in my life I began to really grow up." Later he said it more simply: "I found myself."

One reason this airman was able to "find himself" and broaden his horizons is because of Air Force interest in the peculiar problems facing men banded together in remote areas.

The Air Force realizes free time not channeled in a creative direction can cause staggering morale problems. Thus, wholesome activities are provided to excite men's minds and busy their hands. Programs along this line range from making athletic equipment available at sites to establishing group study classes and providing library service.

A complete list of athletic equipment is furnished the personnel services officer at every worldwide post. He can survey the men's needs, decide what sports gear is practical for the climate, and order it. Hobby materials can be ordered the same way, and the results can be interesting. One food service technician at an Iceland station developed such a consuming interest in leathercraft he made personally monogrammed wallets for every man at the site. Other Air Force personnel have developed different hobbies.

A colonel based in Korea decided to build a B-29 flying model. It took him six months to complete the six-foot wing span miniature. His enthusiasm prompted a number of other people to begin designing and building model airplanes. A model airplane club resulted. It is still in operation today though the colonel has long since been reassigned to the United States.

For inside recreational activities, Air Force personnel services has developed a multi-purpose building for use as a gym, movie house, snack bar, and library. Many of these buildings serve as social centers at remote sites.

Education Tempers Isolation

The major spare time activity at many remote sites is education, and a favorite academic pastime is participation in group study classes. One person is selected from site personnel to head the study group. A lieutenant stationed on a South Pacific island, for example, used his electrical engineering know-how in instructing 14 airmen in basic physics. He sharpened his own memory and helped improve the airmen's knowledge.

Group studies, however, aren't the only roads open for men at far away places seeking higher education. Some 44 colleges and universities are now participating in the USAFI program which is available to all men at remote bases. An airman first class who was a former college student completed 15 semester credit hours during his Saudi Arabia tour and later qualified to attend school at the University of Maryland. He later received his bachelor of arts degree.

He is typical of 758 men who last year earned their college degrees through "operation bootstrap." Degrees were granted to 416 men "on campus" while 342 others earned their sheep-skins entirely on their off-duty time.

Last year more than 75,000 Air Force personnel stationed from Taiwan to Turkey took USAFI courses while 79,000 others participated in group study classes. A portion of these people were at places like Northern Canada and Eniwetok.

If improving professional abilities is the educational goal of men on remote assignment, then the USAF Extension Course Institute is what the student ordered.

More than 135,000 Air Force personnel enrolled last year for correspondence courses from the institute at Gunter AFB, Ala. These courses, fitted to every Air Force career specialty, range from weather and intelligence to armament. Squadron Officers School, Command and Staff School and the War College programs may be taken by officers through the ECI program.

For personnel stationed at isolated posts within the United States the Air Defense Command has provided something new in education. Mobile vans, stacked with texts and tests, roll between radar sites from Mt. Laguna, Calif., to Lake City, Tenn.

A testing officer plus educational specialists accompany the van. They help set up education programs and enroll men in courses. An airman can take his GED test while the van visits his site and a few days later receive a plan which will guide him towards his high school diploma.

Books, as well as formal education, are important to men stationed at the Air Force's far flung bases. Though most sites don't possess extensive library collections, large library service centers at command level rotate books between sites.

In the Far East volume-filled library service centers are located at Showa Air Base, Japan, and Kadena Air Base, Okinawa. Current magazines, periodicals, and hundreds of books are distributed by these centers.

Airmen stationed at ADC isolated posts are visited by education specialists with books and tests.

Only the best man the isolated sites vital to national defense, and they understand the need.

Despite the proximity to civilization, Texas Tower duty is about as isolated as you can get. This one is located about 30 miles south of Nantucket.

Favorite reading material received monthly by isolated personnel is paperback editions. Air Force libraries receive 1,698 paperback book kits each month consisting of 50 different titles. Subjects covered in paperback books run the gamut from classics to western to sports and adventure.

If a man at Wake Island wants a special book, all he needs to do is write to the library service center and request the volume. Through an inter-library loan system, he may borrow books from the Air University at Maxwell AFB, Ala. He'll have his book in a jiffy either way. Any book is only a letter away from Air Force personnel.

More Than a Job

Even so, life is certainly much more than eight hours of work a day, concentrated reading, and self-amusement at isolated stations. Depending upon the site's location, rich friendships with citizens of other countries can make the tour more than a job. It can become a rich, meaningful experience.

The roads were muddy and it was a long jeep drive to the orphanage from the radar site at Camp Niho in Southern Japan, but 1st Lt. Richard Newton and the officers and airmen wanted to deliver their Christmas packages to the children on time.

Finally they reached the small orphanage. The children were afraid of the Americans at first. Soon they all sat down together for lunch and the gayly-wrapped presents were opened. Site personnel showed the boys and girls how to work their new playthings and joyfully romped with the youngsters. At day's end every American had a Japanese child tugging at his arm. Those men will never forget their one-day excursion to the little Japanese village.

The same story has been told a thousand times wherever American servicemen have been stationed. One Air Force technical sergeant who served on Kwajalein after WW II still receives letters from the King of the Marshall Islands to whom he taught English.

Sometimes isolated duty requires servicemen to live, for the most part, off an indigenous economy where American dollars are of little value. This seems a favorable experience. "Bartering with Greek mountain sheep herders was more fun than a barrel of monkeys," said a warrant officer once stationed in Europe.

Perhaps experiences like these, wherever possible, make up for the "routine" and "dull" aspects of duty in hardship areas. Whether they do or not will always be a hotly contested question. But, isolated duty, even for nonvolunteers who normally can't be sent back to a remote site overseas more than once every five years, will be an Air Force reality for some time to come.

If there is a "best way" to look at isolated duty few people have explained it. One Air Force brigadier general, however, made a fair attempt while addressing a group of men at a Labrador base.

"God has given us all good minds and strong bodies and with them we can either make ourselves happy or miserable here," said the general.

"But there is one thing we can't afford to do," he emphasized. "That is anything less than our very best."

THE LAST OF THE BOMBARDIERS

Down a lonely road on a cold black night,
A miserable beggar trudges into sight,
And the people whisper over their beers—
There goes the last of the bombardiers.
What is a bombardier? No reply.
But men grow silent and women sigh,
As a deathlike silence fills the place,
With a gaunt grey ghost of a long-lost race.

Furtive glances from ceiling to floor,
Till someone, or something, opens the door,
The bravest of hearts turn cold with fear,
For the thing in the door was a bombardier.
His hands were bony and his hair was thin,
His back was curved like an old bent pin,
His eyes were two rings of black,
And he vaguely mumbled, Shack, shack, shack!

This ancient relic of the second world war,
Crept across the room and slouched on the bar,
And in hollow tones from his sunken chest,
Demanded a drink and only the best.
The people said nothing but watched in the glass,
As the beggar produced his bombardier's pass,
With the glass to his lips, they heard him say,
Bomb bays open—Bombs away!

Then speaking a word he slouched thru the door,
And the last of the bombardiers was seen no more,
But all thru the years that phrase has stuck,
When you say "Bombardier," you add, "Hard luck."

—ANON

Contributed by MSgt. Jimmie Burousas, *Brookley AFB, Ala.*

Shooting the Breeze

No Sweat

One of the great air stories of World War II concerns a B-26 that was flown into North Africa via Natal and Ascension Island. Its skeleton crew was a second lieutenant pilot, age 20, and an old time master sergeant crew-chief, age 40. On takeoff from lonely Ascension, the eager lieutenant raised the landing gear a little prematurely. The aircraft settled a bit, both props touched the runway, but there was enough speed to recover and keep going. When the scared crewchief was able to speak, he said, "Sir, on that takeoff the props cut into the runway. Don't you think we'd better go back?"

And the lieutenant said, "Ah, the heck with it, let them fix their own runway."

Specialized Maintenance

Air Force "tech reps" (manufacturer's representatives assigned to work at various USAF bases for on-the-spot handling of "hardware" problems) are always eager and helpful.

At a midwest base recently a B-52 crew returned from a training mission. A tech rep greeted them and asked if anything unusual had happened during the flight.

Not to disappoint him the pilot finally said he was having trouble with his cigarette lighter. "What seems to be the trouble with it?" the tech rep wanted to know.

"Well," said the bomber jockey, "the flint doesn't seem to spark."

"Oh," replied the disappointed tech rep, "I'm the wick rep, you'll have to see the flint rep about that."

Airplanes Are Like Women

Maj. Gen. Alfred F. Kalberer, the ConAC vice commander whose more than 20,000 hours flying time is believed to be the highest total of any pilot in the Air Force, was recalling his early days as a student pilot:

" 'Airplanes and women have much in common,' my instructor told me when I was 17 and about to take my first ride in a *Jenny*. 'You have to be firm,' he continued, 'but also gentle. You get no further by roughing up an airplane than you do by roughing up a girl. The iron hand in the velvet glove about sums it up.'

"I have never been able to find fault with his theory of gentle firmness. The iron hand in the velvet glove works with almost everything, particularly with airplanes."

BASELINE USAF

DAGGER TO DART

Geiger Field, Wash.--USAF defense units throughout the United States are presently making the transition from Convair F-102 Delta Daggers to the same company's F-106 Delta Darts.

As a matter of fact, the transition is becoming so common that there is little news value in the event anymore. However, the 498th Fighter-Interceptor Squadron of this station added a one-in-a-million twist to their transition story recently.

The last of their outgoing F-102s bore the number "479;" the replacement F-106 bore a corresponding set of digits.

FIRST IN THE UK

RAF Station Mildenhall, England--Airmen at this station were the first in England to benefit from the new "single-location" policy for postal facilities.

Officials of the 3rd Air Postal Squadron here recently completed the combined installation of the Base Post Office-Unit Mail Room facilities under a single roof, in this case, adjacent to the Base Snack Bar.

In addition to speeding up mail deliveries and reducing both handling time and number of personnel needed, the new system allows local airmen to check their personal mail box at any time of the day or night--a boon to shift workers.

PRINCESS BY PROXY

Ellsworth AFB, S. Dak.--This SAC station is playing host to the first woman ever to be honored by adoption into the Sioux Nation of the Black Hills Council of American Indians.

The honor was recently bestowed on Mrs. Henry J. Landry, wife of Captain Landry of the 43rd Aviation Depot Squadron of the locally based 28th Bomb Wing.

The gesture on the part of the council was in recognition of her efforts in advancing the welfare of the Indians in the immediate area. More specifically, she has been highly instrumental in fostering a welfare program for underprivileged local Indian children.

The adoption ceremony was performed in full and authentic regalia at the nearby Rapid City auditorium.

PAMPERED PARCEL

Johnson AB, Japan--Mail also made news at this USAF Far East station this month.

A/3C Dominick Dipirro, 6041st Operations Squadron, recently received a birthday cake from home. Mailed only four days prior to the airman's birthday, it arrived in Japan on time and undamaged.

The strange twist to the story, however, is the fact that the cake's 8,000-mile trip was completed in an "open" box. Covered only by a single cellophane sheet, designed to keep dust and dirt out, the six-pound goody made the trans-Pacific jaunt by first class mail.

Total postage cost was $5.60--nearly a dollar per pound--but a well-fed Airman Dipirro is convinced it was money well spent.

(Extracts from Gen. Thomas D. White's presentation to the Committee on Appropriations, U. S. Senate.)

". . . . mixed forces—missiles and manned vehicles — are needed to provide optimum flexibility."

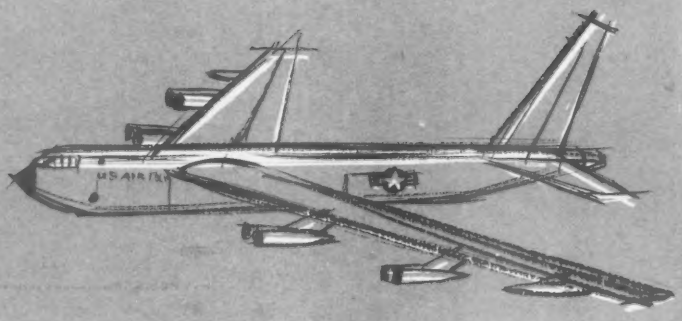
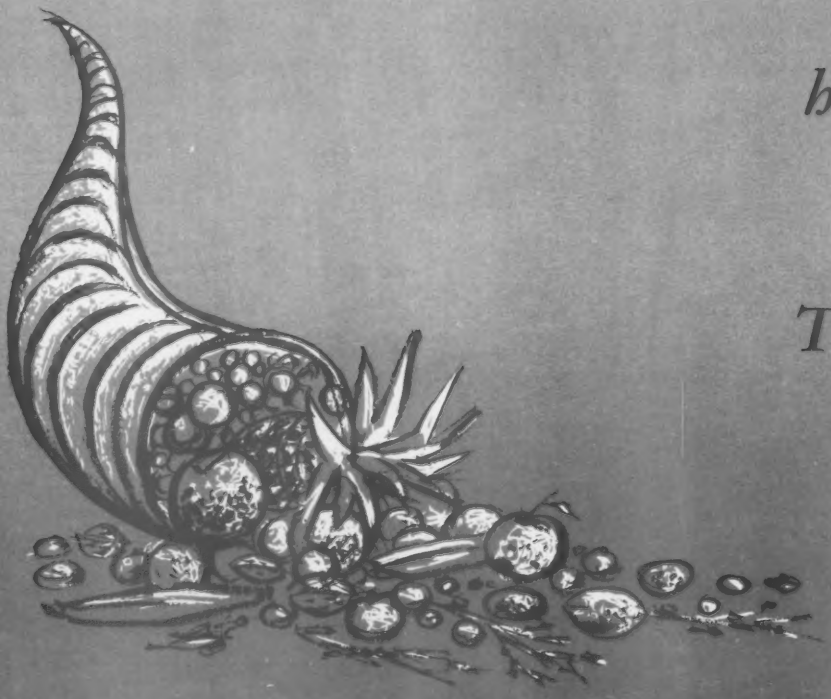
". . . . the ability to attack the heart of an enemy's military strength . . . . requires versatile striking power which can —selectively and decisively—destroy his military forces and war making capacity."

". . . . Our military airlift requirements are dedermined substantially by the D-Day military airlift requirments plus the continuing wartime requirements that have to be met."

". . . . The Composite Air Strike Force . . . . can be tailored in size and composition to meet any particular situation where a show of force, an application of force, or a general war augmentation is required."

". . . . our defensive forces will react immediately — to destroy enemy attackers as far from their targets on this continent as possible."

PEACE
AND ABUNDANCE



for
which
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Thanks